

# AMERICAN VETERINARY REVIEW.

MAY, 1915.

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## EDITORIAL.

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### EUROPEAN CHRONICLES.

Bois-Jerome, 15th March, 1915.

**STEPHANURUS DENTATUS.** The cutaneous entrance of the larvae of some helminthis through the healthy skin is a fact which is definitely admitted, besides the one so thoroughly demonstrated by many pathologists, viz., the buccal penetration. But there is a point, which is still waiting an agreement, that is the relative importance of either of those modes of penetration from the scientific point of view. And while for many the digestive canal has been considered as the most favorable to the entrance of the parasites, for others, on the contrary, the cutaneous is not only a possibility but is the most frequent and the easiest mode of penetration.

Messrs. Bernard and Bauché have made a special study relating to the *Stephanurus Dentatus*, a parasite of hog, in which they have experimentally taken for subject the relative importance, as far as its evolution, of the cutaneous or buccal penetration of the larvae in the organism of their host. The *Stephanurus Dentatus* is principally located in the adipose tissue of the ureters and of the kidneys. It is found also in various frequency in the liver and very exceptionally in other viscera.

The experiments carried on by these two investigators are related in a communication of the *Annales de l'Institut Pasteur*.

The history and morphology of the parasite are concisely considered, and are well known to American scientists, where they

have been the object of many publications. For the first time, Diesing in 1839 described it, as it was obtained from tissues obtained by Matterer in Brazil from Chinese hogs.

In 1870 Verrill, not knowing the previous researches of Diesing, described under the name of *Sclerostoma pinguicola*, a nematod sent to him, which was the *Stephanurus Denatus* of Diesing.

Fletcher, in 1871, attributed to this nematod the large death from hog cholera among the pigs of Indianapolis.

During the same year Morris observed in Australia the same parasite.

In 1874 in St. Louis (Missouri) Dean recognizes the presence of *Stephanurus*, which he called *Strongylus Dentatus*, in the perirenal and periurethral adipose layers and exceptionally in other organs. He finds ova in the renal pelvis, the ureters and the urine. But he failed in the cultures of the ova and found in the lesions only parasites—adults, or in an advanced stage of evolution.

Dinwidie, in 1892, at Arkansas, Lutz in Brazil, estimate that the importance of the damages caused by this nematod is limited to the depreciation, of general consumption, of the infected organs.

Bancroft, in 1893, mentions its presence in Australia; and Magalhaes, in 1894, in Sao Paulo in Brazil.

Louise Tayler, of Washington, in 1899, calls attention to the possibility of cultivating ova obtained from the urines. She observes the first stages of the larval evolution. The possibility of the transmission of the parasite from the infected animal to the healthy subject, by the water or food soiled with larvae, seems possible to her.

Z. Hellmans, in 1911, studies the parasite in Java and Sumatra. He confirms the elimination of the ova by the urine.

T. H. Johnstone, in 1912, has, in Queensland, Australia, found immatured forms in the liver.

In the same year, while at Dahomey, G. Pecaud makes a clinical study of the Stephanurosis, prevailing extensively in

that country, and establishes facts of importance relating to the parasite.

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The disease due to *Stephanurus dentatus* is peculiar. Animals that are affected present during life no apparent symptoms. And yet it was quite prevalent in the districts observed by Bernard and Bauché, as they found it in a proportion of 34.6 per cent. of the animals that are killed for consumption. The lesions that were found seemed almost always about the urinary organs. Indeed, in 100 cases they existed 100 times round the ureters and the kidneys, were found 4 times in the liver, very seldom in the lungs and never in the spleen or other viscera.

At the opening of the cadaver, the muscles and fat appear normal. But round the ureters and the kidneys the celluloadipose masses that are there enlarged give to the touch the sensation of the presence of smaller little cords. When the fatty masses are quite massive, the superior third of the ureter, the kidney and suprarenal capsulae form a bosselated single tumor, which when incised appears as hollowed with numerous cavities irregularly arranged through the mass. Each of these cavities contains two worms, swimming in a greenish viscuous liquid. Some of the cavities are empty. The parasites are grouped by couples, male and female. A longitudinal section made from the pelvis of the kidney to the bladder shows the ureter, with its mucous membrane raised by little elevations with a small opening in the center, and connects by a small canal with one of the cavities of the mass. The urine of the bladder contains a large number of eggs, and the examination of that secretion permits the healthy animals to be selected.

When the perirenal cellular tissue is involved, round the fibrous envelop, which is intact, there are cavities in which parasites are lodged.

When the liver is affected this organ is congested, sometimes twice its normal weight, and has its surface covered with whitish nodules, varying in size and which contain one parasite. The parasites found in the liver contain no eggs.

The meat of the animals is perfectly wholesome. The infected organs are thrown away. Although there are cases where severe cachexia being present the use of the meat cannot be allowed.

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To solve the problem that the writers proposed to themselves, viz., study the modes of entrance of the larvae of the *Stephanurus* in the organism, they arranged series of experiments which they divided into two groups, viz., one for the penetration by the digestive canal, with animals fed with food richly mixed with larval cultures, and another with animals exposed only to the cutaneous entrance. In these, cultures were spread at given times for several days upon the skin of the abdomen and flank. The skin being afterwards well protected to prevent it being licked by the animal and guard against a possibility of buccal infection.

The conclusions of the experiments were that the *Stephanurus* may penetrate the organism of swine: 1. By the skin. 2. By the digestive tract and that specific lesions are found corresponding to these modes of penetration.

Indeed, peri-urethral and peri-renal cysts are found for the first and hepatic hypertrophic cirrhosis for the second.

The observation of the natural disease and the experiments made have clearly demonstrated that the peri-urethral localization of the *Stephanurus* is part of the evolutive cycle of this nematod.

Since the investigations of Looss and others, which have controlled his words, cutaneous penetration is considered as a phenomena of general order, whose peculiar known cases are becoming more and more numerous. The demonstration of the relative importance of this mode of infection and of the buccal penetration was difficult to realize in using as material of experiments, the ankylostomes that occupy the small intestines as only habitat. The localization so markedly differentiated of the *Stephanurus dentatus*, according to its mode of penetration,



show that the larvae follow as easily the buccal or the cutaneous tract to infect their host. The frequency of each one of these modes of entrance is under the dependency of the influences of the media in which the receiving animals and also the larvae of the nematod live. But the buccal penetration is an accident which carries with it the disappearance of the parasite. The cutaneous entrance alone is compatible with the preservation of the species.

This is a very important conclusion.

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FOOT-AND-MOUTH DISEASE. A *suspected* case of contagion of this disease to man is interesting to American veterinarians at this time, when the States have to control what has proved a sufficient danger to prevent the national gatherings which had been organized to take place in New Orleans.

The case is recorded in the *Veterinary News* and taken from the *Journal of the Royal Army Medical Corps*.

The patient was a soldier, aged 19, who had no history of previous illness. At camp, whilst carrying some boiling water, he fell and scalded his left wrist, an open septic wound developed. Nine days after, he complained of a burning sensation in the mouth and on his hands, blisters soon followed. He entered the hospital. The next day his face was flushed and rather congested, the temperature 101 degrees F., pulse 100, lips were swollen, and there was a marked vesicular eruption, rapidly becoming pustular all over the buccal mucous membrane, there was difficulty and pain on protrusion of the tongue, which was coated and on which a few vesicles were seen. Breath very fetid, salivation free and the speech thick; the nasal and conjunctival mucous membranes were clear; there was a well-marked vesicular eruption on both forearms and at the sides of the nails; the palms were most affected; the feet were also implicated but not to such a marked degree. The eruption was primarily vesicular; the vesicles varied in size from that of a

mustard seed to a sixpenny piece and were situated on a hyperdermic base about  $\frac{1}{8}$  inch in width, showing no tendency to coalesce. They were larger on the fore arms than elsewhere. They caused a burning sensation and were tender on pressure, there was no itching. The bowels were constipated; otherwise there were no gastro-intestinal symptoms. The heart and abdomen were normal. All superficial reflexes were very brisk. During the next three days the rash became more pronounced; a few isolated vesicles appeared on the face, neck, abdomen and thighs. The mouth was very sore, the vesicles having coalesced, ruptured and given rise to shallow ulcers, with yellow sloughy bases; the mucous membrane of the lips had the appearance of one continuous yellow slough, the margins of the lips were crusty and dry; there was no excessive secretion of saliva. There was great difficulty in taking fluid nourishment, but no pain in swallowing. The vesicles on the extremities showed no tendency to pustulate and there was no involving of lymphatic glands. Serum from vesicles contained no organisms; a few polymorphs were found. There was no leucocytosis; eosinophilia was present to the extent of 10 per cent. The urine was high colored and acid, specific gravity 1.027, cloud of albumin, no deposit; microscopically nothing was found. The temperature which had remained at 101 degrees F. fell on the sixth day and continued normal.

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This minutely described history of an attack of sickness is concluded with the information that the convalescence was uneventful. The serum in the vesicles became absorbed and the skin scaled, leaving faintly pigmented areas. The albuminuria gradually disappeared.

The reasons for suspecting this case as one of foot-and-mouth disease are:

1. The disease followed the course of an acute specific fever; its toxæmic origin was shown by the distribution of the rash, the presence of albumin in the urine and the temperature.

2. The disease did not resemble the other hydroa.
3. There was an open wound on the wrist.
4. Foot-and-mouth disease was prevalent in the district.

It is interesting to note that a stray collie dog used to frequent the patient's hut for feeding purpose. This dog was drowned. Perhaps he might have had some connection with the patient's condition and the cattle disease.

Experiments to establish this connection were made with the serum from the vesicles and the saliva, rabbit and guinea-pig were inoculated with negative results.

At any rate the case was certainly deserving notice and record, as foot-and-mouth disease is very rare in man.

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TETANUS. Again this disease occupies many pages of the medical publications that are available to me. Of course for the present at least they refer to tetanus as consequence of the war.

Its *treatment* and its *prognosis* are the object of a communication in the Presse Medicale from a surgeon who has had quite a number of tetanic patients to attend to. He has had recourse to various forms of treatment, chloral, morphine, anti-tetanic serum, carbolic acid injections, etc. The period of incubation has also been the object of the attention of the writer. The appearance of the symptoms, of the trismus, the dysphagia, the salivation, were symptoms always followed by rapid death, occurring generally in 24 hours, perhaps 2 or 3 days or 6 as a maximum.

As conclusions, the communication says:

1. Phenic injections have no action whatever on the development of the lock-jaw.
2. Chloral seems to be the best therapeutic agent to relieve the symptoms.
3. When the first manifestations, indicating that tetanus is likely to develop inside ten days after the injury (wound or other), the chances of recovery are so much reduced; tetanus is

generally fatal when the incubation has been less than eight days. But by opposition when the disease breaks out after a long incubation (more than 15 days), it has a tendency to recover spontaneously.

Our readers will bear in mind that the present conclusions apply to the human form of the disease. It is a question if they would apply to the veterinary.

PREVENTIVE VALUE OF THE SERUM. Dr. Bazi states first of all the necessity to bring forward all the documents that are necessary and can be gathered at present, so as to show to still existing rebel practitioners the immense value of this preventive value. It has already been demonstrated, he says, in animals whether it was resorted to in cases of castration or of caudal amputation, and also in cases of wounds likely to be followed by tetanus after several days, etc.

And after remarks on the appearance of the disease, the mortality that took place, the peculiar causes which were brought in, he makes the following conclusions:

All war wounds must be injected preventively. The injection must be made as soon as possible after the wound is received, but it may and must be done even when several days have already elapsed. The dose indicated by Mocard for horses, but for man, as large quantities of serum are now needed, Bazi recommends for the sake of economy the injection of only 2 or 3 c.m.

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ALUMINIUM IN SURGERY. Amongst the many new appliances which are brought forward in the records at present published from the seat of the European war, is the application of splints made with aluminium in cases of fractures. It seems from what I read that in England humane surgeons have been resorting to them for a long time. If for some specific reasons their use may be limited in veterinary surgery, it is certain that for small animals such splints will advantageously take the place or be a good adjunct to the means that are in general use.

The material consists in lamella or bands of aluminium of various lengths, according to the indications, 13 m.m. in width and 3 in thickness. On one flat side of each are riveted every 8 c.m. small flat rings. There are also needed a number of smaller ribbons of aluminium about  $1\frac{1}{2}$  m.m. thick.

To apply them, two or more bands are cut of the wanted length, being careful that the rings come face to face; then a number of the smaller ribbons are prepared corresponding to the number of rings of the large bands. These ribbons are of sufficient length to surround half the circumference of the parts to be immobilized. The ribbons being passed through the rings of the wide bands are bent at that point and thus they become fixed. The splint is thus made solid and can be applied and moulded upon the region which it is to protect. Wadding pads are laid between it and the skin to prevent chafing. Any other support can be applied over the entire apparatus as the case may indicate.

The indications for the aluminium splint are said to be principally in cases of a temporary immobilization, or in case of an open fracture, or of a suppurative arthritis, or again in case of simple support for any fracture which is not quite entirely consolidated.

These which are indicated in an article from a surgeon on the front are in reference to injuries on human beings, but much of it may be taken for veterinary application.

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BIBLIOGRAPHIC ITEMS. I am pleased to acknowledge from the Research Laboratory of Parke, Davis & Co.: 1st. The record of a case of *contagious broncho-pneumonia* caused by *bacillus coli communis*, published by Dr. Edwin M. Stanton. This had already appeared in the REVIEW.

2d. A reprint from the *American Journal of Public Health*, headed "*Potassium Tellurite as an Indicator of Microbial Life.*" This paper presents the investigations of Doctors Walter E. King

and Lewis Davis. It presents in detail the experiments made on the action of the potassium tellurite on various micro-organisms, with several illustrations. It gives the general conditions of the tellurite reaction and concludes as follows: 1st. Nearly all of the micro-organisms react with potassium tellurite, forming characteristic black compounds. 2d. This capacity depends on an active state of metabolism of the reacting organism, and the action is, in all probability, a reduction of the tellurite. 3d. The "tellurite reaction" can be used as an indicator of microbial life and is especially suitable for revealing microbic contamination. 4th. A dilution of 1:50000 of the salt seems to be most suitable for its action as a general microbic indicator. In this concentration it produces no irritative action when introduced into test animals.

I have also the February number of the *Cornell Veterinarian*, a special issue called the *Foot-and-Mouth Disease* number. At this moment when the disease has prevailed in so many of the states and to such extent the special number with its many illustrations and complete history of the disease by Prof. James Law, with its nature, etiology, symptomatology, diagnosis, etc., by the members of the staff of the State Veterinary College, will undoubtedly prove most interesting reading. It ought to be extensively circulated.

A. L.

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#### THE APPROACHING MEETING OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION AT OAKLAND.

Oakland! The very name conveys a sense of restfulness. And that was the object of the local committee in selecting Oakland instead of San Francisco on this occasion. To give to the A. V. M. A. members the relief from the crowd and rush of busy San Francisco, while conducting the affairs of the meeting, while they may still see as much of San Francisco as they desire. To those who have never been to the coast, to go there and not see "Frisco" would of course seem out of the question; for it is a



wonderful city; but to be able to enjoy such a proximity to it as to be able to be in it every day (if desired) and still have the haven of rest on the continental side of San Francisco Bay to return to, is an ideal situation such as none but a Pacific coast committee would be able to create. But do not think for a moment from our writing that we imagine we are to be tucked away in a little hamlet amongst the hills, for Oakland is a city of 215,000 population. The view here shown of part of the business district, including the new \$2,000,000 city hall, will dispel any such illusions, and give some idea of the business importance of this wonderful Pacific coast city whose climate is



Part of the business district of Oakland, showing the new \$2,000,000 City Hall and some of the skyscrapers.

almost perfect at the time of the year when our convention will be in session there, and its hotel accommodations are equal to any city of its size. The city itself is a beautiful one architecturally, and within a 50 mile radius are more fine drives than in any other part of California. Speaking of hotel accommodations, we will remind those who attended the convention in San Francisco in

1910, what that committee thought was proper "housing" for the A. V. M. A., when they put us up in the "Palace!" Well, this committee, with Prof. C. M. Haring of the University of California as chairman, have not modified their ideas any as to what "fits" the A. V. M. A. members, and they have selected the magnificent Hotel Oakland as A. V. M. A. headquarters. This palatial structure, situated in the heart of the city, occupies nearly two acres and bears the reputation of being one of the handsomest hotels in the world. There are 450 guest rooms in the hotel,



The Hotel Oakland, headquarters of the A. V. M. A.

and every one of these has an outside exposure, thus guaranteeing the full quota of California sunshine, of which the City of Oakland receives more than its share. Dining room service a la carte, 6 a. m. to 12 m. Special luncheon in grill and main dining room from 12 until 2 o'clock. Table d'hote dinner Sunday evening from 6 until 8 o'clock. Afternoon tea service from 4 until 6 o'clock. That gives you some idea of the headquarters the local committee has provided. The committee has also selected a most

inspiring place in which to hold the sessions of the several sections. It is the new Municipal Auditorium, recently erected at a cost of \$1,000,000. More than 100 big meetings will be held in it this summer. Our convention will immediately follow the convention of the National Education Association, which will bring 60,000 visitors to Oakland. There is a direct ferry service



The new Municipal Auditorium in Oakland, where the convention sessions will be held.

from Oakland to the Exposition grounds, which are out just beyond the Presidio, in San Francisco; a place that those who attended the convention there in 1910 will remember visiting. This ferry will reach the Exposition grounds in 40 minutes, which is quicker than it can be reached from many parts of San Francisco, and the dust and crowded condition of the street cars is replaced

by a scenically beautiful five mile sail across the bay, giving a splendid panorama of bay, mountains and the Pacific through the *Golden Gate*.

At least one of these panoramic scenes will be enjoyed by the A. V. M. A. in a body, as the following sketch of the entertainment programme suggests:

Monday evening, August 30, smoker and entertainment, Commercial Club.

Tuesday evening, August 31, reception and ball, Hotel Oakland.

Wednesday evening, September 1, banquet, Hotel Oakland.

Thursday evening, September 2, election of officers.

Friday, September 3, A. V. M. A. day at the Exposition.

Surely there is enough of beauty and attraction to make us all want to go to Oakland and visit the Exposition, even if the trip across the continent held nothing for us. But the official route as selected by Secretary Mayo, holds for us pleasure and enchantment that it is difficult to put into words. Read the itinerary, and while doing so try and realize how much more pleasant every step in it will be if taken in a special train with your own party than if taken with strangers. There will be more than enough going to make a special train a possibility, as it only requires 125 persons, but Secretary Mayo must be advised of your intentions in time, and 125 must have advised him of their intentions to go before he can arrange for the train. And then do not forget to have him make Pullman reservations for you. Your tickets you can buy from your local agent right through to Oakland over whatever route you travel on to Chicago, and over the C., B. and Q., 11 p. m., train out of Chicago August 24th. If we run a special, it will have a special name or number that will be published in a later issue; but the time of departure will be the same.

#### THE TRAIN OF THE OFFICIAL ROUTE OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.

Our train will be personally conducted on the entire trip from Chicago by a Passenger Department representative. It will be

elegantly equipped and one of the handsomest trains ever assembled. The equipment will include electric lighted, standard drawing room and compartment sleeping cars, observation library car and a "Burlington" dining car.

Every possible effort will be made by the railroads to make this one of the most comfortable and enjoyable trips ever undertaken by the A. V. M. A.

#### SCHEDULE OF THE A. V. M. A. SCENIC TRAIN.

Lv. Chicago .....	11:00 p. m. Aug. 24th C., B. & Q.
Ar. Colorado Springs.....	10:00 a. m. Aug. 26th C., B. & Q.
Lv. Colorado Springs .....	4:00 a. m. Aug. 27th D. & R. G.
Ar. Glenwood Springs.....	4:00 p. m. Aug. 27th D. & R. G.
Lv. Glenwood Springs.....	8:30 p. m. Aug. 27th D. & R. G.
Ar. Salt Lake City.....	8:30 a. m. Aug. 28th D. & R. G.
Lv. Salt Lake City.....	12:00 noon Aug. 28th W. P.
Ar. Oakland .....	5:00 p. m. Aug. 29th W. P.

#### ITINERARY.

##### *Tuesday, August 24th.*

The American Veterinary Medical Association Special Train will leave from the Union Passenger Station (Canal and Adams streets), at 11:00 p. m. via the Burlington Route.

##### *Wednesday, August 25th.*

This day will be spent traversing the tremendously rich Mississippi and Missouri River Valleys, whose agricultural and industrial enterprises are among the most prosperous in the entire world. Mississippi River is crossed at Burlington, Iowa, and the Missouri River at Omaha. After passing through Lincoln, the capital of Nebraska, our route lies across the wealthy wheat and corn producing areas which has made this state famous.

During the day the climb of the eastern foothill slope of the Rockies will be so gradual and unperceptibly accomplished that Denver, the mile-high metropolis of the Rockies and the gateway to "The Wonderland above the clouds" will be reached about

midnight. Here our train will be delivered to the D. & R. G. R. R. for immediate movement.

*Thursday, August 26th.*

Leaving Denver after some very delightful hours spent in passing parallel to and in full view of the snow covered Rocky Mountains, prominent amongst which are several well known mountains, such as Pike's Peak, our train is due at Colorado Springs at 10:00 a. m., where our cars will be conveniently parked during our sojourn here.

COLORADO SPRINGS.

Seventy-five miles south of Denver, but 800 feet higher, is Colorado Springs—said to be the home of about as many millionaires as any other city of like size in the nation.

A number of delightful side trips may be made into the Pike's Peak Region from Colorado Springs. The shorter of these little journeys from Colorado Springs can be made by carriage or automobile—to the Garden of the Gods, with its grotesque formations, and the time for the round trip, about two hours (street car fare 20 cents), to Monument Park (street car fare 20 cents) about the same time; across the Mesa to Palmer Park and return—via the boulevard—about three hours (\$1); to Cheyenne Canyon and the Famous Seven Falls—about four hours (street car 20 cents, admission 50 cents). To include the "High Drive," the grandest of all, thence down through Bear Creek Canyon and Colorado City, back to Colorado Springs, a half day is preferable. The trip to Crystal Park via automobile from either Colorado Springs or Manitou requires about four hours and is one of the grandest trips in the region (cost \$3.00). In Manitou proper are the famous soda, iron and sulphur springs.

In the vicinity of Manitou are the Cave of the Winds (admission \$1.00), Cliff Dwellers Ruins (car fare 10 cents, admission \$1.00); the Scenic Incline up Mt. Manitou (street car fare to incline 10 cents, trip \$1.00), Ute Pass and Temple Drive; made on foot three miles, two hours time.



The trip up Pike's Peak via the Famous Cog Wheel Road (height 14,147 feet, time for round trip about four hours, fare \$5.00). The trip to Cripple Creek Gold Mining District via the "Short Line"—"The one-day trip that bankrupts the English language" (cost of trip \$2.50). Leave Colorado Springs 8:00 a. m., return Colorado Springs 3:00 p. m.; leave Colorado Springs 11:50 a. m., return Colorado Springs 6:50 p. m.

*Friday, August 27th.*

Our train has purposely been scheduled to leave Colorado Springs at 4:00 a. m. in order that every daylight hour may be spent in the regal Rockies.

ROYAL GORGE.

The famous Royal Gorge is soon reached. This climax of mountain scenery is easily the event of a transcontinental trip. It is the grandest and most awe-inspiring mountain defile ever mastered by a railroad engineer. At its narrowest point, the sheer half-mile high walls of granite are about thirty feet apart where the train slips through on the much-talked-of hanging bridge, which carries the track over and parallel to the rushing stream around the projecting mountain wall.

Beyond, the route is one continuous moving picture of tremendous mountain scenery, staged on the most gigantic scale. The compelling fascination of it all grows with the passage of every succeeding mile.

The Continental Divide is crossed at Tennessee Pass, 10,240 feet high, through a half mile tunnel, the western portal of which opens upon the Pacific Slope.

GLENWOOD SPRINGS.

At 4:00 p. m. our special train will reach Glenwood Springs, made nationally famous by its "Transcontinental Bath," a splendid open air hot water swimming pool 750 feet long and 65 to 110 feet in width. Nearby is Hotel Colorado.

Leaving Glenwood Springs at 6.30 p. m. en route to Grand

Junction, the Palisades are passed, which affords a delightful journey through the Grand River Valley fruit section.

Prominent among the other points of scenic importance passed are the Collegiate Peaks, Princeton, Harvard and Yale, Mt. Massive, Eagle River Canyon and the Canyon of the Grand River.

*Saturday, August 28th.*

SALT LAKE CITY.

After spending the early morning passing through some of Utah's mountain scenery, including Castle Gate and Soldier's Summit, the interesting Mormon countryside, Salt Lake City will be reached at 8.30 a. m. This city with its quaint Mormon institutions, its commercial aggressiveness and its attractive environs has a fascinating lure to the tourist whose sojourn there is afterwards cherished among the most pleasant recollections of his Pacific Coast trip.

Arrangements have been made to make an auto tour of the city, which will include the Temple, the Tabernacle, the Bee Hive built by Brigham Young, the University of Utah, etc.

There has been arranged for the enjoyment of our party an excursion to Salt Lake, America's Great Dead Sea. The waters of the Great Salt contain 22 per cent. salt, which creates a buoyancy that keeps a body on top of the waves without any physical effort. Under these conditions a bath in its green buoyant waters is a unique and invigorating experience.

Our schedule calls for our departure from Salt Lake City at 11.45 a. m., via the Western Pacific Railway, which was selected in order to give our party an opportunity to view the fascinating scenery which has recently become available to tourists by the opening up of this new transcontinental line.

Shortly before leaving the suburbs of Salt Lake City our train will pass through rock reinforced embankments built over the waters of the southern part of Great Salt Lake.

Later it will cross the salt beds of the Great Salt Lake Desert Basin, which were long a myth and an adventurer's tale until

recently substantiated by the construction of the Western Pacific Railroad, through the middle of the solid mass of salt sixty miles in length, eight in width and from one to fifteen feet deep and 98 per cent. pure salt. The surface is flat and has a whiteness of hard packed snow, the refractive waves of air cause remarkable mirages, changing the jutting crags of the shore line into monstrous floating islands.

*Sunday, August 29th.*

#### FEATHER RIVER CANYON.

The real feature of this route is Feather River Canyon, a remarkable 90-mile gorge through which the rails are laid on shelves chiseled through solid rock. The alternating view of river, meadow, glen and valley and the placid reaches of still water succeeding swirling rapids with amazing swiftness presents a panorama of mountain and stream without parallel. The route by which this new road pierces the Sierra Nevada Mountains has been recognized for many years as the most desirable of all, yet because of the expense incurred in its construction it was never used until accepted by the Western Pacific engineers.

Oroville at the western end of the canyon is the largest gold dredging district in the world. With all the suddenness of turning a new page the scene changes. Our train passes into the level and productive Sacramento Valley, through the capital of California, which bears the same name, and the center of the great citrus and olive growing industry. After making a wide detour through the northern portion of the rich San Joaquin Valley, Oakland is reached at 5 p. m.

The following low rates are in effect, the tickets being good for 90 days. These rates apply to San Francisco, Los Angeles and San Diego. Stop-over privileges are allowed either going or coming at any place.

Chicago .....	\$62.50	Washington .....	\$92.30
New York .....	94.30	Omaha .....	50.00
Philadelphia .....	92.95	Minneapolis .....	63.85
Pittsburg .....	81.20		

Going by any direct route and returning via a diverse route if desired. Those who desire to go or return via Portland, Seattle and the northern routes can do so for \$17.50 additional to the above rates.

#### CANADIAN AND EASTERN MEMBERS.

Previous experiences have proven the futility of attempting to mobilize members for a short distance. Hence no attempt will be made to get the members east of Chicago to travel on any special train to that city. There are numbers of trains out of New York City that could be used to reach Chicago in time to join the western members on the special from that city. But for the convenience of our eastern members we will publish two good trains operated over two different roads, either one of which will be found convenient as to time of departure and arrival, and no excess fare is charged on either. One is known as the Panama-Pacific Express and leaves the Pennsylvania station, 32d street and 7th avenue, New York City, daily at 2.04 p. m., reaching Chicago at 5 p. m. the following day. The fare on this train is \$21.10 and the berth is \$5. Another convenient train, known as The Westerner, leaves the Grand Central Terminal, New York City, daily at 2 p. m. and reaches Chicago the next day at 5 p. m. The fare on this train is also \$21.10 and the berth \$5. Where tickets are bought through to Oakland, the \$21.10 is included in the \$94.30; there is only the berth extra.

By leaving New York on August 23, either of these trains would bring you comfortably into Chicago in daylight of the day on which you leave for the coast in the evening. Anyone all along the route could get this same train (one of them) at his respective city, and a nice party would arrive at Chicago at a convenient time.

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#### PROPOSED COMMITTEE TO ASSIST BELGIAN VETERINARIANS.

We are just in receipt of a little French booklet entitled, *Bulletin Mensuel De Le Societe De Medicine Veterinaire Prat-*

*ique*, in which, under the proposition of Dr. Liautard, a committee has been formed to assist Belgian veterinarians when they return home, ruined, penniless, homeless and without practice; in fact without anything. The assistance will be given, as we are able to translate it, after the war. A board of officers has been named, amongst which are some of the highest authorities in the profession in France, Belgium and England. Cannot we in America do something to demonstrate in a material way our sympathy for the distressed condition of our professional brothers abroad. Contributions however small, subscribed by veterinary societies or individuals throughout this country would be a material help. If subscriptions are sent to the REVIEW, or pledges of amounts to be forwarded on demand, they will be carefully cared for, and the subscriptions acknowledged by publication. We trust that American veterinarians appreciate the utter ruin of the Belgian veterinarians and will stir their organizations into activity in their behalf.

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EDITOR SICK—REVIEW LATE: Owing to a protracted illness of the REVIEW editor, the editorial office was dead-locked for a time, and the number comes out late as a result, for which we apologize.

A TYPOGRAPHICAL ERROR: The *seventh* word on the *eighth* line, page 11 of the April issue should be *we* instead of *to* as it now appears, i. e., *those to whom we offer our work*. This is a very slight typographical error, but robs the sentence of its sense.

UNIVERSITY OF PENNSYLVANIA—SCHOOL OF VETERINARY MEDICINE.—We have recently received the announcement of the thirty-first annual session (1915-16) of the above institution, and were much impressed with the same. We use the word impressed advisedly, for we have known the institution from its birth and it has always been in "dead earnest," but on carefully reading over the statistics of the institution of to-day, we find much to impress us with the excellent work that is being done there. We congratulate the faculty and management and wish them Godspeed.

## ORIGINAL ARTICLES.

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### REPORT OF THE OFFICIAL TOUR OF EUROPE OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION TO ATTEND THE INTERNATIONAL VETER- INARY CONGRESS AT LONDON, 1914.

BY ADOLPH EICHHORN, WASHINGTON, D. C., AND C. J. MARSHALL,  
PHILADELPHIA, PA.

*(Continued from April Issue.)*

#### HUNGARY.

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The boat arrived in Fiume early in the morning, and upon our landing, an officer with the rank of major in the Austro-Hungarian Army, and also a brother of the writer, with his wife, were there to bid us a hearty welcome upon our arrival in Hungary. The officer was Dr. Feiler, a graduate veterinarian, who was assigned by the Government to act as our aid during our entire stay in Hungary. He spoke splendid English, and it was pleasing to all of us to have the genial Dr. Feiler with us during our stay in that country. After his address of welcome, our party proceeded to a restaurant, where, for the first time, we indulged in a more elaborate breakfast than we had been used to in other parts of continental Europe.

We soon left Fiume for Budapest, and during the journey of fourteen hours Dr. Feiler entertained our party, particularly some of our more inquisitive members, by furnishing interesting information on the veterinary administration of Hungary. The veterinary service in Hungary is divided into two parts. One is under the Minister of War, the other is under the Minister of Agriculture. The organization and rank in each are practically the same. A central administration is conducted in the department proper, whereas the country is divided into districts, each



of which are in charge of a chief veterinarian. The districts, on the other hand, are again divided into counties, which are also in charge of a veterinarian. The ranks of the government veterinarians are somewhat similar to those in the army, and by efficient service a veterinarian can get the rank of a colonel. The term of office is for life with a pension after sixty years of age or after ten years of satisfactory service if unable to continue work.

The transmissible diseases in Hungary are practically the same as in the United States. Foot-and-mouth disease is common. Its mode of control is by quarantine measures and artificial infection of the affected herds. In the diagnosis of glanders the subcutaneous test is employed principally, although more recently the ophthalmic mallein tests and also the complement-fixation test is employed. Hog cholera is treated mostly by the single serum method, the simultaneous method not having yet gained favor, and when employed the vaccinated herd is placed under strict quarantine for thirty days. In the vaccination for anthrax the Pasteur method is most frequently used, although the simultaneous method in this disease is also gaining favor. Tuberculosis in cattle runs as high as 40 per cent. in Swiss cattle, but not quite as high in the native breed. They do not test with the tuberculin except on importation of cattle. The destruction of tubercular cattle is not compulsory except when the udders are affected—in which case the Government pays full indemnity and the destruction of the animal is required. The examinations are conducted by the Government veterinarians, and when an infection of the udder is suspected, the milk samples are forwarded to the central laboratory for bacteriological examination.

The railroad trip from Fiume to Budapest took us through very fertile parts of Hungary, Hungary being strictly an agricultural country. Agriculture has been developed to a high degree of perfection, and the Government is aiding the farmers to a great extent in farm management and all branches pertaining to scientific farming.

## BUDAPEST.

After a restful night at our comfortable hotel in Budapest, early in the morning Dr. Feiler, with representatives of the city, called and presented to us the program which had been prepared for our stay in Budapest. In this program every hour of our time had been busily filled, and we looked forward to very strenuous times during our stay.

Soon eight touring cars made their appearance before the hotel, and our party, together with several representatives of the



View of Budapest, Hungary.

city and interpreters, started on an inspection and sight-seeing tour of the city on the banks of the blue Danube. A visit of the Municipal Markets was our first stop. The central market hall of Budapest takes up a square block, and appears one of the best-managed institutions of this kind in the world. The main floor contains the stalls in which all food products are offered for sale. Different divisions are provided for the sale of meats, fish, dairy

products, vegetables, fruits, etc. A balcony around the entire building is also provided with stalls in which staple food products, flours, and many other products connected with the food supply of the people are offered for sale. Scrupulous cleanliness of the entire building is characteristic. In the basement of the building cold storage rooms are provided; also tanks in which live fish are kept by the dealers for the benefit of the consumers. The building is connected by a tunnel with the banks of the Danube, in order to facilitate the transportation of the food products which, to a great extent, are brought to Budapest by boats. A track also brings the railroad cars with the food supplies directly into the building.

Besides the large central hall, there are a considerable number of retail stores conducted by the municipality in different parts of the city. The prices charged for the different foodstuffs in these stores are established by the city. This feature of controlling the prices of food products has proved of great benefit to the people in that city, since it tends to prevent the retailers from charging excessive prices for the products. Special shops for the sale of horse meat and products prepared from horses are also maintained by the city, and only the city is permitted to slaughter horses for food purposes. The meat products, such as sausages of all kinds, prepared from horse meat, appeared very attractive, and a certain class of the population patronizes these shops most exclusively. Horse meat sells for about one-third less than beef and other meats.

From the city market we visited the Municipal Abattoirs. The abattoirs of Budapest were built at two periods. The abattoir for the slaughter of cattle is an old establishment and is not entirely up-to-date in its structure and equipment, but the abattoir for the slaughter of hogs and sheep is entirely modern and was erected only eight years ago. The cell system is not in vogue in the slaughter of animals, and a large hall is provided for the slaughter of cattle the same as for the slaughter of the small stock. A careful ante-mortem inspection is provided at the unloading chutes, and the cattle are taken from there into

the market halls. The butchers buy the stock in these halls and kill them for their own trade. Wholesale meat dealers are still unknown, but there is a tendency in that direction at the present time.

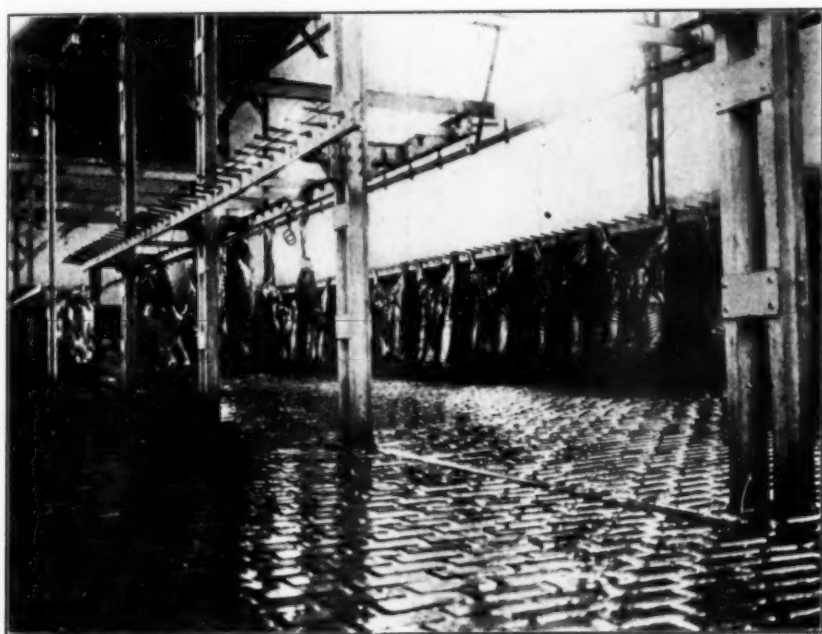
All animals are stunned before the bleeding. The slaughtering of large animals is conducted in the customary way, although



Administration Building and Entrance to Municipal Abattoir at Budapest.

the process is much more primitive than in the United States, since one or two men do all the dressing of the carcass. Hogs are turned first into a pen. They are then caught, rolled on their backs and stuck. The blood is caught into pans. A large crane swings over the pen. Two hogs at a time are lifted by the crane and swung over a large scalding vat. After scalding they are lifted from the hot water by the same crane and swung on to a scraping table, where the scraping is done by hand. Some of the hogs are skinned. They are then placed on rails, eviscerated and dressed for the market.

The meat inspection is conducted by city veterinarians, with a chief inspector in charge. This is conducted very thoroughly, the diseased animals being tagged and sent to the Sanitary Abattoir for final disposition. If such carcasses are conditionally passed, they are treated in accordance to the regulations by sterilizing them and sold on the Freibank. Other carcasses, particularly those showing slight affections with measles, are chilled before they are released for the market. The Freibank is conducted by the city itself. The sterilized meat and meat which has been otherwise rendered harmless is offered for sale at a considerably reduced price. The demand for this meat is invariably greater than the supply.



Horse Abattoir, Budapest, Hungary.

The horse slaughter-house was a very interesting feature to members of our party. Private dealers are not permitted to kill or handle horse meat. Both the slaughtering and marketing of horses is carried out by the municipality. The city prepared a luncheon for us which consisted of various kinds of horse meat,

sausages prepared from horse meat, rye bread and horse radish. Every one was persuaded to partake of this extraordinary luncheon, and the general comment was very favorable towards the tastefulness of horse meat. Dr. Marshall expressed himself that he never would have suspected that the sausage was not made in our good old U. S. A. style if he had not been told differently.

Retention stables are provided for animals which are left over at the market halls after the conclusion of the market, or



Garden Stairway (Royal Palace).

which are shipped before the market day. They accommodated about 3,000 head of cattle. The market hall is a large building provided with side and skylights and troughs for the tying and the feeding of the animals. Cattle are sold usually individually, not in lots, and by weight, although at times one sees the buyer palpating the animals and making purchases at so much per head.

A sight-seeing automobile ride was then provided for our party which took us to the most interesting parts of the beautiful city of Budapest. A visit to the St. Mathias church, where the



Hungarian kings are ordained, proved very interesting. We also passed through the courts of the Royal Palace, which is located near the same church. On the lower side of the church is the Official Bastion, a very grand structure, provided with very interesting walks leading to the summit of the hill on which the Royal Palace is located. From there, one has a beautiful view

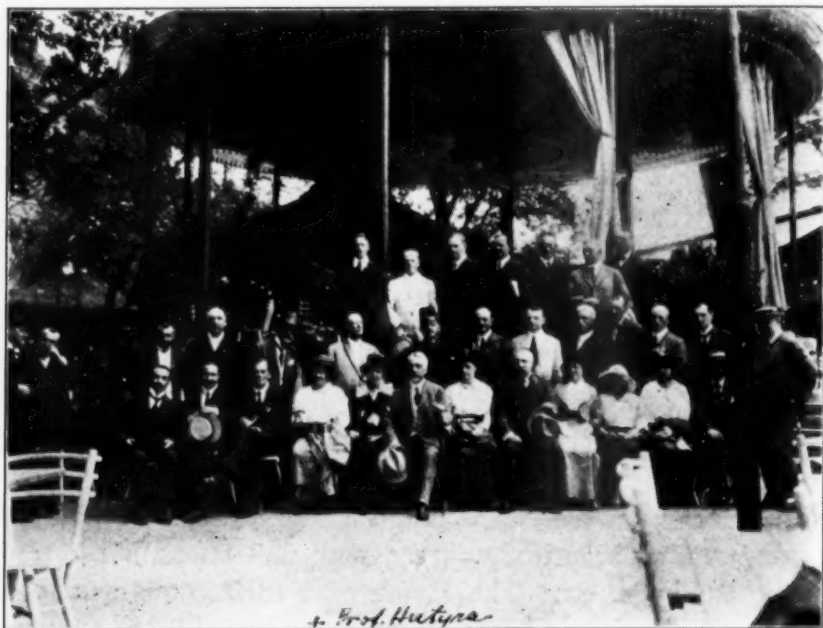


Royal Palace, White Hall.

of the city, which is built on both sides of the Danube, and both banks are kept beautifully parked with nice lawns, shade trees, public buildings, etc. The House of Parliament is across the river from the Royal Palace. Four monumental bridges connect the two parts of the city. A small island in the Danube known as the "Island of Marguerite" contains a recreation park and the city health baths. The city has erected on this island splendid hotels, hospitals and baths especially for those afflicted with rheumatism. Several such municipal baths—which are very up-to-date—are located in the city of Budapest, and they offer splendid advantages for those who desire to take the medicated water baths for the restoration of their health. These hot-water

artesian wells have been known to possess wonderful curative properties for centuries. It is highly commendable that the city should make these baths available for the afflicted people.

A visit of the Zoological Garden was then undertaken, where we had the pleasure of meeting the Mayor and also other dignitaries of the municipality of Budapest. A splendid banquet was arranged for our party, and it was our pleasure to meet there Professor Hutyra, who needs no introduction to the veterinarians of the United States. His activity towards the advancement of veterinary science is known to every progressive veterinarian



Party and Guests at Municipal Dinner, Budapest, Hungary.

Prof. Hutyra, 6th from left, seated.

throughout the world. The very best feeling prevailed during this feast, and true Hungarian hospitality made itself felt with every one of us. They, Mayor, Professor Hutyra and others made addresses, to which responses were made by Doctors Marshall and Blair in very well chosen remarks.

After this pleasing repast our party was guided by the director

of the Zoological Garden through the park, which is one of the finest of its kind in Europe. The City Park also contains the Royal Museum of Agriculture, which, to most of us, was of very great interest. Mr. Alojós Von Paikert, an official of the Department of Agriculture, acted as our guide. He having spent two years at Washington, spoke English well. The Museum was built and endowed by a wealthy Hungarian. It is about as large as the Academy of Sciences in Philadelphia. It contains a complete collection of all the resources of the state, whether vegetable, mineral or animal. It is arranged in groups as follows:

1. Agricultural statistics.
2. Agro-geology (two groups).
3. Cultivation of vegetation.
4. Gardening (horticulture).
5. Diseases of vegetation.
6. Noxious and harmful animals.
7. Viticulture and wine industry.
8. Experimental institutions.
9. Dairy farming.
10. Agricultural industry.
11. Agricultural labor.
12. History of agriculture.
13. Meteorology.
14. Agricultural machinery and implements.
15. Agriculture architecture.
16. Animal breeding.
17. Animal hygiene.
18. Primitive occupations.
19. Agricultural training.
20. River regulation and improvement of soil.
21. Agriculture.
22. Sericulture.
23. Forestry.
24. Fishery.
25. Hunting and shooting.
26. Watering places and mineral waters of Hungary.

A similar endowment would make a very attractive donation to our country from some benevolent person. All foods and vegetables are put up in wax, and the workmanship is artistic. All wild animals are prepared by competent taxidermists. Everything in this building is complete to the minutest detail.

Our party spent the evening as the guest of Professor Hutyra in one of the leading restaurants on the Danube, where we greatly enjoyed the wonderful music of one of the famous Gipsy bands of Budapest.

A visit to the Hog Cholera Serum Establishment, which was one of the first in the world, proved also very instructive. This establishment was started by the Government, but two years ago was sold to a syndicate, and since that time it has been maintained as a private institution under the supervision of the Government.

Serum treatment of hog cholera is very extensively practiced in Hungary, more than in any other country of the world. The establishment for the production of anti-hog cholera serum was started by Professor Hutyra in their present quarters, but it proved inadequate for the demand, and a tract of land has been purchased for the establishment of a new plant which will meet all the modern requirements. The production of the serum is carried out on the principles established by Dorset and Niles of our Bureau of Animal Industry, with the exception that all the serum which is being prepared is the clear serum without the corpuscular elements of the blood. After the defibrination the blood is centrifugalized in huge centrifuges with the capacity of seven liters. The clear serum is then removed with the aid of pipetting and then phenolized ready for distribution.

All the virus used for the hyperimmunization of the hogs is being prepared in the establishment, which has a capacity of three thousand hyperimmune hogs. The laboratory is plain and provided with all the customary apparatuses for sterilization and also for research work. The serum is sold to veterinarians only at the price of about \$22.00 per thousand c.c.

Hungary probably has one of the best veterinary colleges in

Europe, and it was gratifying to us to have Professor Hutyra as our guide during our visit to that institution. The buildings are located within a small park, and large commodious quarters are given to each department. The grounds are very artistically laid out. Everything around the institution is neat and in the best of condition. They have about two hundred students, the course is four years, and entrance requirements are high school graduation. The students' quarters are provided with a restaurant which is well patronized by the students and also by some of the pro-



Veterinary College, Budapest, Bacteriological Institute.

fessors. Sixty persons can be seated at one time. Meals are served from seven to nine a. m., and from twelve to two p. m. The school furnishes the room, stove, gas, tables, dishes, etc. A woman is hired to prepare the meals. The Government gives a small allowance for the maintenance of this establishment. The two meals cost about 40 cents per day, and prove to be of great convenience and economy to the students.

They also have a splendid library with several reading rooms. The librarian is in constant attendance.

In the Department of Zootechnic they have fine models of all breeds and species of animals. Some are of noted individuals, some were purchased from the well-known firm of Hauptner, in Berlin, but most of them were made by an artist at the school.

For the benefit of our party while visiting the hospital, the introduction of a stomach tube was demonstrated. There is no operating table in the school, as it is considered that the practicing veterinarian is called upon for operations without such facilities at his command. Rye straw is being used as bedding in the dog kennels. The floor under the cages is cement. They have a removable wood slat floor, and on this is placed the straw. The entire floor can be flushed out with water. It appeared much more comfortable than where no bedding is used.

The anatomy specimens were particularly fine. All specimens such as those of the genital organs, nervous system, brain, etc., are colored, named and mounted in a way that is interesting and instructive. The Laboratory of Milk Hygiene has also a splendid collection of specimens. Cultures of various bacteria that cause peculiar odors, flavors and colors in milk are shown. Also, forage plants, weeds, foods, etc., that impart the peculiar flavor to milk, also udders mounted in various ways to show normal and abnormal conditions.

Professor Marek's laboratory and lecture room is covered with pictures of animals showing areas of palpation, percussion, etc. He uses a projectroscope and lantern and moving pictures to illustrate his work. He teaches physical diagnosis and non-transmissible diseases and also has charge of the medical clinic, while Professor Hutyra teaches the transmissible diseases. In their department we also saw splendid collections of specimens which are used to great extent in demonstration work during the course of these various subjects.

The Bacteriological Building and Laboratory is located at considerable distance from the school, and besides being used for the instruction in this branch of veterinary science it is also being utilized for the production of biologic products for veterinary and human use. The stables in which the animals are kept are constructed in the most hygienic manner, and the laboratories are also equipped in the most satisfactory manner for the handling of such products. Tetanus and diphtheria antitoxin, also anthrax serum, which is now quite extensively being used in con-



nection with a simultaneous method of immunization against anthrax, are some of the products which are prepared here.

The hospitals are arranged in a very practical way, a special contagious ward being provided for the treatment of animals infected with such diseases. Our entire party was very favorably impressed by our visit, and we found in Professor Hutyra a true friend to all veterinarians and an ardent worker for the welfare of our profession.

Several of the members also visited the trotting races, which were attended by large crowds. The visitors were not as aristocratic in appearance as seen at the Grand Prix of Paris some two weeks before. Betting appeared to be very keen and the races were very good, but much different than ours. The track was about one-thousand meters, about  $\frac{2}{3}$  of a mile. The horses run are started together, but are handicapped. Most of the good races were won by American horses, and the best drivers were American. Of the American drivers whom we saw, were Bodmer, Benyon and Charlie Lyons, who used to drive for Gears. We called on them after the races and had a good talk with them. They seem to like this plan of races much better than the American plan, and say it is easier over there than at home to make it pay. The owners of the horses are members of the Hungarian aristocracy. The best race of the day was won by Soprano, which has also done good work in America. Densmore and Earnest Artell were two other good American horses.

In the itinerary of our visit of Hungary, a trip to Mezöhegyes, where the Royal Farm and breeding establishment is maintained, was also included. This place is about two hundred miles southwest of Budapest, and is conducted by the Government for the purpose of improving the live stock of Hungary. Almost all species of domestic animals are bred in this immense place, and it continues to be of great service for the improvement of the live stock of the country, for which it was established. An invitation to visit Mezöhegyes was extended to us by the Government. The estate comprises about 50,000 acres, and is even provided with a comfortable hotel for visitors. This proves to be an essential

feature, since there are at all times tourists from all parts of the world visiting this wonderful institution. At the station our party was met by army officers. After washing and a few minutes of rest ten carriages were placed at our disposal for the forenoon and afternoon. Each carriage was drawn by two thoroughbred horses driven by a coachman in a picturesque uniform. The



Our Party at Mezöhegyes, Hungary.

party did not return until 9.30 in the evening, and the trip was one of the finest we have ever enjoyed.

The estate is located in the richest section of Hungary. The land is level and the soil is a heavy, black muck. Every conceivable courtesy was shown to us. We met the director of the estate, Colonel Dorramon Peter, the assistant directors and the veterinarian in charge. The breeding farm is the largest in Europe. Hungary has two other breeding farms, but they are not as large as Mezöhegyes. They breed especially thoroughbred horses, Simenthal cattle, Hungarian cattle, Mongolicza hogs

and Ramboulet sheep. The principal object is to get males of these species for breeding purposes. As soon as they are matured, they are sold or loaned to breeders in various sections. If a community wants one of these animals it can arrange with the Minister of Agriculture to purchase it on the installment plan and own it after three years. Any that show defects are castrated or destroyed. There are 7,700 people employed all the time, and 15,000 additional during the busy season. The live stock is as follows: 1,200 Simenthal cows; 4,000 Simenthal oxen; 2,000 Hungarian oxen; 1,000 brood



Professors Ujhelyi and Eichhorn at Magyar Ovar, Hungary.

sows; 7,000 pigs; 350 boars; 8,000 sheep; 600 work horses; 25 pure bred stallions; and 200 brood mares. There is also a large number of Hungarian cows. There are no fences on the farm, except around corrals. All this stock runs in flocks or droves without herdsmen or shepherds in charge during the day, and they are all placed in corrals at night. All the animals are re-

markably tame. A cow bell is placed on one of the most docile horses. This bell is a guide to the other horses. A herd of Hungarian cattle is a fine sight. They are all white, with very long horns, many of them so wide that a person cannot reach with their arms extended from the tip of one horn to that of the other.



On the Breeding Farm at Mezöhegyes, Hungary.

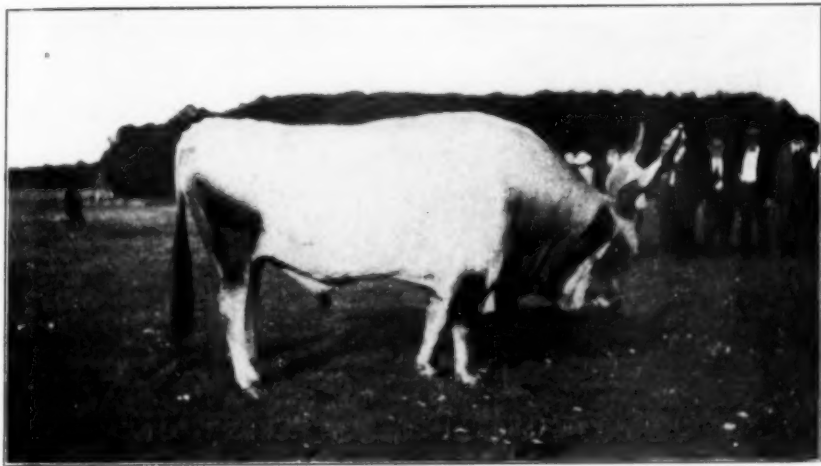
The hogs are also peculiar, for the reason that in the place of bristles they have fine hair, or wool. They are especially good bacon hogs, and the hams and shoulders run large, the meat being of a very fine quality.

The stallions are very uniform in color, conformation and type, and are fully 16 hands high, looking very much like our best hunting horses. Their history and method of breeding are interesting, but too long to be discussed here.

Their Simenthal cattle are among the best in the world. They are large, light-red or yellow and white, much the color of the Guernsey. Their udders are small. The fat contents of the milk averages 4.50 per cent. They are not fed for milk. The only object at Mezöhegyes is to raise the best bull calves possible. At the time of our visit the cows were in the stable being milked,

and their appearance was fine. This breed makes the very best kind of work oxen. They work two pairs of oxen for all purposes. They are worked for three years, then fattened and sold for beef. The fattening requires about six months.

The stock barns are mostly of cement, with cement mangers. Hay, straw, stalks, millet, etc., is stacked in the fields. These



Hungarian Bull, Mezőhegyes, Hungary.

crops were being harvested and were very heavy. The work is all done by hand. In several places we saw thirty or forty men and women mowing with scythes. They were using two gang plows as an experiment. The director thought it would be a failure in wet ground. The plowing is done as soon as possible in order to kill parasites that destroy the wheat.

The care of the horses, particularly the thoroughbreds, is in the hands of soldiers assigned for this line of work, and each stable has a sergeant with ten men under him. The laborers in the field receive about \$10 a month, house rent, fuel, etc., free. Laborers wear different uniforms to indicate to what states they belong.

All cows are tuberculin tested once a year. The reactors are destroyed. In the last test on 1,200 Simenthal cattle, they had but two reactions and none in the Hungarian herd. The bulls

are not tested, and not much attention is given to testing bulls at any time. They have considerable trouble with foot-and-mouth disease and hog cholera, but practically none with milk fever, omphalophlebitis, or contagious abortion.

Six students are selected from the graduating class of the veterinary school at Budapest to spend two years on the Govern-

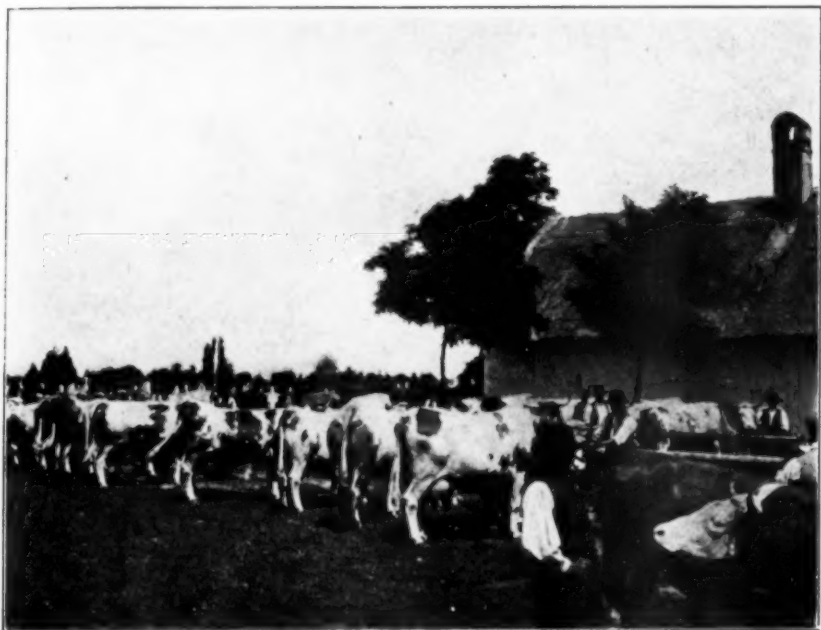


Hungarian Steer, Mezöhegyes.

ment breeding farms. They put in one year at Mezöhegyes, six months at Kisber and the balance at Babolna. For their services they receive \$250 per year and necessary living expenses. The experience gained in these places is very beneficial to one who wishes to enter the field of private practice.



The farm at Mezöhegyes was established as a breeding farm in 1785. Horses for the army was the principal and only object at first. It was, of course, and has remained under military management. They have kept excellent records of the breeding of the horses, and all those purchased for breeding purposes. It might be possible and profitable in time for some of our states to maintain breeding farms. Our party was very much pleased with the attention received in Mezöhegyes and the visit proved very instructive to all of us.



Simenthal Cattle at Magyar Ovar, Hungary.

Before leaving Hungary our itinerary took us on a visit to the College of Agriculture, located at Magyar-Ovar, and also an first to the dairy farm, owned by the Archduke. The estate contains 35,000 acres. They have 3,000 dairy cows and 3,500 head of young cattle. We visited one stable where 150 cows are kept. The stable was of very up-to-date construction, with estate of Archduke Frederick, the brother of Emperor Francis

Joseph. We were met at the station with carriages and driven good cement floors and ventilation. Cows were fastened with chains on a sliding rod and arranged in double rows facing each other on either side of a central alley.

All cattle on this estate are subjected to an annual tuberculin test and have been free from this disease for several years. After



Army Horse, Mezöhegyes, Hungary.

inspecting the stable and the fine herd of brown Swiss cattle, we were taken to the main office where a dairy luncheon had been provided. The party had a perfect feast on the good milk, butter, cheese and other dairy products. After lunch we had a drive of about ten miles to the farm belonging to the Archduke, and arrived at the Royal Agricultural College of Magyar-Ovar about noon. A visit to the college was very instructive, especially the museum specimens of implements, wax models of vegetables, foods, preserved vegetables, models of the finest species of farm animals, etc. The college herd consists of a splendid lot of ani-

imals and has been freed of tuberculosis and is being kept free. Ten years ago the first testing was done. The results were that out of 2,195 head of cattle tested, 57 per cent. reacted. 1,229 were mature animals and 74 per cent. of these reacted. In a recent test of 3,765 2.7 per cent. reacted. Of these there were 1,937 mature cattle with 3.6 per cent. reactors, and 1,828 young cattle with 1.8 per cent. reactors.

The faculty of the Agricultural College arranged for our party a splendid dinner cooked in typical Hungarian style, and this was enjoyed by everybody. A very interesting feature of this dinner was the Gypsy band, which had been brought for our



Team of Cows at Magyar Ovar, Hungary.

special benefit into the dining room to furnish us a concert during the meal. The Director of the Agriculture College toasted our party in Hungarian, which was translated by Dr. Eichhorn. Dr. Blair and also Dr. Eichhorn responded to the toasts.

Besides the manager of the estate of the Archduke, Professor

Ujhelyi met us upon our arrival at Magyar-Ovar and remained with us until our departure for Vienna. The Director is a graduate from the Veterinary School of Budapest and is the Director of the Agricultural College and of the Experiment Station. He is a very practical and thorough veterinarian. The community of farmers residing in the county in which the Agricultural College is located have the greatest gratitude toward the director, as with his splendid work he helped these people to organize the co-operative plan of farming. He is very much respected by the people at the College on the Archduke's estate and by the peasants of his community. He informed the farmers of our arrival, and in spite of the fact that it was a fine day for the harvesting of the big crops of oats, wheat and barley—and there must have been an abundance of work that needed their attention—yet they led their cattle on the village commons and lined them up for our inspection. Truly it was a holiday for them. Most of the cows were Simenthal crosses of native Swiss cattle. They were large, clean, and in fine condition. One family had nice harness on two cows which were hitched to a small farm wagon. The harness and brass were polished and as bright as a button.

We were then shown through several stables belonging to the laboring class of people. Some had six cows and others twelve or fifteen. They are kept in the stable all the time during the period of lactation. The stables are kept very clean, and are being whitewashed twice each year. The cows were as clean as well-groomed horses. The stables appeared, however, somewhat crowded, and not well ventilated, but we were told by Director Ujhelyi that these conditions are being improved as fast as the means of the people could afford and he feels very much encouraged with the improvement that has been made during the past ten years. Their cattle are tested every year with tuberculin, and they have practically eradicated tuberculosis without any assistance from the Government in the matter of paying indemnity.

The bulls are purchased on the co-operative plan, and are

kept in one stable. They are inspected before they are purchased, and only approved bulls can be used for service. Both the bulls and cows which we saw in the stables of the peasants were as good and well-bred as any belonging to the Archduke or the college, and they occasionally make very good sales.

Professor Ujhelyi's work proved very interesting to us in many ways. As Director of the Experiment Station he has been able to make it pay from 5 to 8 per cent. profit. All expenses were included with the exception of the salaries of the professors in the Agricultural College. He thinks it is a mistake to run such institutions at big expense when trying to teach efficiency and economy. His work in controlling tuberculosis is known throughout Europe for the excellent results he has obtained. In his territory the herds only a few years ago were badly infected, and now they are free and the results were obtained by carefully following the Bang system. It has been eliminated with no expense to anybody. The results were so good that Professor Bang made a special trip to this place.

Equally good work was accomplished in the control of calf pneumonia, white scours and navel infections. As soon as a calf or colt is born, it is removed from the cow or dam and placed in a small cement pen in the general stable. The mother is milked by hand for eight days and the milk is fed to the calf or colt. After this time it is allowed to run with the mother. Since this plan has been followed they have had no trouble with either disease. He does not believe in ligating the umbilicus, and allows no one to touch it.

A few years ago the herd was infected with contagious abortion through new stock introduced from Switzerland. He believes in and uses the complement-fixation and agglutination tests for making the diagnosis, but in their experience he found that cows sometimes abort that do not react to either test. He has treated this disease successfully by disinfecting the cow and bull, but leaves the infected cows in the milking line. He thinks the infection is carried on the feet of attendants, who in turn infect the food or feed floors. To prevent this, he has a bag of oakum

saturated once daily with a strong creolin solution and placed in the entrance of the feed floor. Anybody who has occasion to enter this part of the stable must step on the bag and thus disinfect his feet.

For farm purposes the Oldenberg type of horses are used and splendid examples of this breed were shown to us in this part of Hungary. They weigh about 1,600 pounds, and in conformation they appear very much like a Percheron.

We also visited one of their many co-operative creameries. It was a cement building, modern in construction and equipped with modern machinery. The milk is separated. All milk returned for calf or pig feed is pasteurized by heating to 80 degrees C. or 176 degrees F. It is then cooled to 35 degrees C. or 95 degrees F. immediately. They have a very good pasteurizer and cooler combined. The farmer receives 4 cents per quart, and good bottle milk sells in Vienna for 8 cents.

The day spent in Magyar-Ovar was rather strenuous, but it was most pleasing and profitable. We were driven to the railroad station (Hegyeshalom) on a tram road operated by horse power. The car was open on one side, and bales of straw covered with horse blankets in either end served as seats. One horse drew two such cars. The horse trots in the middle of the track. Such tracks operate throughout the estate of the Archduke, and are used principally for transporting farm products. There is nearly one hundred miles of such roads on the estate, and it is profitable to haul the produce to the railroad station by this means of transportation.

At Hegyeshalom we had to part from our good friend Major Feiler. He met us in Fiume and had been with us all the time during our stay in Hungary. He was delegated by his Government to show us Hungary and to explain to us its various points of interest, and he fulfilled his obligation to the entire satisfaction of every member of the party. He was kind and obliging, thoroughly familiar with all parts of the country visited, knows the people and their customs, and spared no effort in showing and explaining everything minutely. We hoped to meet him



again in London during the International Congress, but through the unfortunate war this pleasure had to be foregone. We shall cherish in our heart a warm place for Hungary and Major Feiler.

Our tour of Hungary was by far the most interesting and instructive part of the tour up to this time. Everything seen in Hungary was of the highest type, including the veterinary schools, abattoirs, stock yards, the zoological garden, breeding farms, agricultural college, experiment station, private estates and co-operative farm settlements.

*(To Be Continued in Our Next Issue.)*

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DEPARTMENT OF AGRICULTURE, STATE OF TENNESSEE, OFFICIAL ORDER NO. 24: Rules and Regulations promulgated by the Commissioner of Agriculture and State Veterinarian under authority conferred by the Acts of Tennessee, 1901, 1907 and 1909. Effective on and after May 15, 1915.

The fact has been determined by the Commissioner of Agriculture and the State Veterinarian that the work of controlling and eradicating European Foot-and-Mouth Disease in the various states where it made its appearance has progressed to the stage where the danger of transmitting the infection by interstate movement or shipment is remote; now, therefore, we, T. F. Peck, Commissioner of Agriculture, and G. R. White, State Veterinarian, do hereby order:

Section 1. That Order No. 23 be and is hereby revoked and all classes and species of live stock are permitted to be moved or shipped from other states into the state of Tennessee for any purpose, provided such movement or shipment is made in accordance with Federal Government Regulations.

Given under our hands and seal, at State Capitol, this May 1, 1915.

T. F. PECK,  
Commissioner of Agriculture.  
G. R. WHITE,  
State Veterinarian.

A PAPER ON MIXED INFECTION VACCINE IN ONE HUNDRED AND SEVENTY CASES OF JOINT ILL, by Frank W. Schofield, D.V.Sc., of the Provincial Board of Health, Ontario, will appear in the June issue of the REVIEW.

## **SOME OBSERVATIONS ON HOG CHOLERA AND THE USE OF SERUM.**

BY H. PRESTON HOSKINS, V.M.D., ASSISTANT PROFESSOR OF VETERINARY SCIENCE, UNIVERSITY OF MINNESOTA, UNIVERSITY FARM, ST. PAUL, MINN.

*(Continued from April Issue.)*

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The double treatment has its greatest use for permanently immunizing hogs in healthy herds, in infected localities. Whether it is a good plan to use the double treatment in herds already infected is open to discussion. Figures would seem to indicate that results do not vary to any great extent in infected herds, whether the single or the double treatment was used. One thing is certain, and that is if the double treatment is used there need be no fear of a recurrence of the disease among the hogs that survive the outbreak. All will have a permanent immunity, except young pigs that had not been weaned before treatment. The results in such pigs are uncertain.

We are frequently asked as to the curative powers or value of serum, and we invariably make it a point to reply that we do not recommend serum as a curative agent, but put emphasis on its use as a preventive pure and simple. At the same time it is apparent to many of us that serum really has some curative powers when given to infected hogs in large doses, at least one-half c.c. per pound of body weight. Only those hogs which are in the earlier stages of the disease should be treated. Serum should not be asked to protect hogs against the many other secondary infections present in the later stages of the disease.

As a general rule the temperature can not be taken as a guide to a hog's condition, unless the history of the disease in the herd is known, and the clinical condition of the animal is taken into consideration. Serum will probably do no good after the temperature has taken a decided fall, and there are well-marked symptoms. In most cases the temperature curve could not be determined by the attending veterinarian unless the temperatures of

the hogs had been taken before his arrival. Better results are to be expected if the serum is given earlier, when the temperature is rising, or is at its highest point. This is not to be considered as recommending serum for sick hogs, but a guide as to how to proceed where a client wishes to save some particularly valuable animals, and is willing to risk the expense of unsuccessful treatment.

As in any surgical procedure, a definite technique should be followed in the administration of serum. With helpers to catch and hold the hogs, and another person to cleanse and disinfect the site of injection, the veterinarian should have nothing to do but inject the serum, or the serum and virus if he is using the double treatment. The hogs should be grouped according to weights as nearly as possible. This is for convenience in estimating the size of the doses to be used. Two serum syringes can be used very conveniently. They can be filled while the hog is being prepared. Hogs that do not require more serum than the two syringes will hold can be vaccinated at the rate of one a minute, without any difficulty, and without creating any impression that the work is being rushed at the expense of care and accuracy.

There are a number of minor details that it would be well for the veterinarian to bear in mind at all times. Serum should be taken from the express office as soon after its arrival as possible and kept in a cool place until used. Do not open more than one bottle at a time, and do not remove from the bottle more serum than will be used. In no case is it advisable to pour unused serum back into a bottle with other serum. Better throw it away. Various receptacles can be used for holding the serum during the process of filling syringes. A pint Mason jar, a tumbler, or a teacup may be used, providing, of course, that they have been previously sterilized. Under most conditions it is well to keep the serum covered when not filling syringes. This is especially true when flies are around, when there is a wind blowing, or when it is necessary to work in dusty quarters.

A cloth saturated with some disinfectant is a convenient way of covering the receptacle. If the cloth is kept wet, it will

not blow off, and if a disinfectant objectionable to flies is used, the advantage of this is obvious. We have heard of a stein being used for holding the serum, the metal lid being conveniently opened and closed for filling the syringes.

One of the safest, and at the same time most convenient ways of handling serum that the writer has used, is one that entirely dispenses with extra serum container. All the equipment necessary is one or more rubber stoppers to fit the serum bottles. Each stopper is perforated with a small hole to receive a needle of large caliber or a canula. The needle or canula used must have a hub to fit the syringe which the veterinarian uses. Their length may be either just long enough to touch the bottom of the bottle, or just long enough to penetrate the rubber stopper. In the former case it will not be necessary to tip the bottle to fill the syringe. When ready to use the serum, all that is necessary is to draw the cork from one of the bottles, and replace it with the rubber stopper and needle, previously sterilized. To fill the syringe, insert the nozzle in the hub of the needle and draw back the plunger. With a little practice this can be done without getting air into the syringe, which may appear to be the first objection to this scheme.

This method has been used by the writer within the past year, in the vaccination of a large number of hogs. Its advantages are numerous, and they will be quickly appreciated if the method is given a trial. The method absolutely eliminates the extra serum container, with all of its many disadvantages. The serum is kept in the original containers, and the possibility of pouring out of the bottle more serum than will be used is entirely overcome. Its greatest advantage, perhaps, lies in the fact that we are able to reduce to a minimum the chances for contaminating the serum, which is never exposed when handled by this method.

In opening a bottle of serum, care should be taken to see that particles of wax or paraffine, used in sealing the corks, do not drop into the serum. These particles of wax, or paraffine, or of the cork, are most objectionable in that they may later clog up one of the needles. It is a good plan to wipe off the mouth of the

bottle with a disinfectant solution before pouring out any serum. Do not lay the cork down carelessly if it is to be put back into a partially emptied bottle of serum.

The most desirable place at which to inject the serum is a much debated question. An examination of the directions given for injecting serum, by the various agricultural experiment stations, revealed that almost without exception preference was given to an intramuscular injection in the region of the inner thigh, or ham. Mention was made, in a few instances, to the possibilities of infection and abscess formation at this point. Other places mentioned included the arm-pit or axillary space, fore and rear flanks, and behind the ears.

It is an accepted fact that absorption from the subcutaneous tissue is much slower than from parenchymatous tissue, a point in favor of intramuscular injections. Winslow<sup>4</sup> says, "The use of irritating drugs is less apt to be followed by abscesses, if injected into the muscular substance, but this method causes more pain than ordinary injections." The principal objections to the custom of injecting serum into the hams have come from the packers, who claim that a large percentage of the deep abscesses are not detected until the ham is cut into.<sup>5</sup>

There are two main reasons why abscesses may follow the injection of serum. *First*, the serum may contain organisms that will cause the formation of abscesses, and all of the surgical cleanliness and asepsis in the world cannot prevent abscess formation when such serum is injected. *Second*, the serum may be free from contaminations, but pyogenic organisms, carried in with the serum, by the needle, or gaining entrance to the needle wound, subsequent to vaccination, may cause abscesses. Other things being equal, abscesses will develop in the loose, subcutaneous connective tissue more readily than in the substance of a muscle. This is mainly due to the difference in the rate of absorption from the two locations, in favor of the intramuscular injection, provided that too large doses are not injected at one point. A peculiar fact is that the formation of abscesses apparently does not inhibit the action of the serum, or lessen its



protective powers to an appreciable degree. We have heard of instances of serum giving perfect results, as far as producing immunity is concerned, but a large number of abscesses following its injection.

An objection to the axillary space, as a site for injection, is the possibility of pricking one of the bones in this region with the needle, especially if the hog is struggling and not securely held. This difficulty can be partly overcome by using comparatively short needles. Hogs are frequently lame after injections of serum into the axilla. It is not as convenient for the operator, if this can be taken as a legitimate objection.

The region in back of the ears has been selected for vaccinating large hogs, such as boars and pregnant sows. There are several objections to this place for injecting serum. The needle must be directed almost at a right angle to the surface of the skin to insure getting the serum beneath the thick layer of fat at this point. Then, again, the skin at this point is very thick and cannot be pinched readily to prevent the exudation of the serum injected. Lastly, it will be absorbed rather slowly and if infection occurs at this point, it spreads to the loose tissues at the base of the ear, and makes a very bad case to deal with.

There are a number of points that the veterinarian should bring to the attention of the owner of the herd at the time it is vaccinated. The veterinarian should tell the owner just what to expect as the result of the treatment, as indicated by the condition of the herd. For instance, if it is a healthy herd, and the double treatment has been administered, the possibilities of losses should be explained. Directions for the proper care of the herd should be given. If the herd is infected, and the single treatment has been applied, the owner should be advised as to just what he should reasonably expect from the treatment. Explicit directions for the prompt and proper disposition of dead hogs should be given. If a quarantine is placed on the premises, its meaning should be made clear, and the reasons for it. Under no conditions is the veterinarian justified in guaranteeing to save a certain per centage of the hogs, no matter how careful he is or how much faith he has in the serum.



The after-treatment of the herd is an important point, and often entirely overlooked. Hogs should, first of all, be fed sparingly prior to vaccination, and for several days afterward. It is desirable, at all times, to excite the hogs just as little as possible. With some hogs, and under certain conditions, this is extremely difficult to avoid. Some hogs are naturally very wild, especially in the presence of strangers, and object very strenuously to being handled. In hot weather it is always desirable to vaccinate early in the morning, before it gets too warm, or in the evening. For the busy practitioner it is not always possible to so plan his work, but it is worth the effort whenever it is done.

It is a good plan for the veterinarian to give his client a few instructions the day before the vaccination, such as getting the hogs into a suitable place where they can be handled with economy of labor and time. The place selected to do the work should be fairly clean, free from dust, well lighted, and large enough to afford plenty of room for the veterinarian and those handling the hogs. The veterinarian should always insist on sufficient help being furnished by the owner, including the services of a man to cleanse and disinfect the site of inoculation. A veterinarian is justified in declining to handle the hogs at all. If there are but a few hogs to vaccinate, and help is not too plentiful, the veterinarian may do his own cleansing and disinfecting, although it is not a good practice.

The selection of a disinfectant for, or the best way to disinfect the site of injection is a much debated question. It is not so much the disinfectant, perhaps, as the way in which it is applied that is important. It has been our custom at the University Farm, to first scrub the skin with a brush and soap suds, using a cake of germicidal soap in the water. This is followed by wiping the skin with a piece of cotton saturated with 70 per cent. alcohol. By using this means for preparing the site of inoculation, we have been able to keep the number of abscesses below 1 per cent. The method may be criticised as being slow, but we believe that the end justifies the means. Some veterinarians go even as far as saying that the skin should not be scrubbed at all,

for the reason that the scrubbing will "stir up" the micro-organisms inhabiting the skin.

Veterinarians are frequently asked what is the best time to vaccinate young pigs. In this connection it must be kept in mind that young pigs vaccinated by the double method before they have been completely weaned will sometimes lose their immunity later on. For this reason our advice is to wait until the pigs have been weaned, and weigh forty, or preferably fifty, pounds before immunizing them. The double treatment does not harm young pigs, but owing to the uncertainty of the permanence of the immunity conferred, it is not recommended. If it is necessary to protect young pigs on account of infection on the premises, or the existence of cholera close at hand, apply the single treatment, to be followed with the double, when the pigs are older.

A question frequently asked, probably more frequently than any other, in connection with hog cholera and the use of serum is the following, "Can a hog, given the double treatment, transmit cholera to a susceptible, untreated hog?" Evidence at hand would indicate a negative answer, provided the treated hog showed no reaction following the double treatment. If, however, a hog given the double treatment becomes sick, even though it does not die of inoculation cholera, it may transmit the disease to susceptible hogs. When the hog shows no reaction to the double treatment, it is presumed that the virus injected is completely destroyed within the animal's body.

From this it will be seen that the original question might have been answered either positively or negatively, and both be right in some cases. In view of the fact that there is a small element of risk with the hogs actually treated, we should try and eliminate this danger before considering the possibilities with untreated hogs. That is after we have made the double treatment absolutely safe and fool-proof, then we can consider the question of the untreated, exposed hogs, if it is thought necessary.

Several years ago artificial pen infection was proposed as a substitute for the double treatment. The method was used in some localities quite extensively. It has a number of objections,

however. First of all, it is technically illegal to transport a cholera carcass, or a hog sick with cholera, over a public highway. The second objection is that it necessarily means infecting the premises, provided they have not already been infected. As a third objection it may be stated that the method is not so sure as the double treatment. Unless particular pains are taken to see that every hog gets some infection, a few may escape. These hogs will develop only a passive immunity. This will die out in a month or so, and then these hogs may become infected later on.

The question as to the advisability of immunizing pregnant sows is frequently brought up. We usually reply that it can be done without danger, but it is preferable to vaccinate such sows during the early months of the gestation period, rather than during the later months. When bad results follow, they are not always attributable to the serum or virus injected, but may very likely be due to rough and careless handling. There are cases where a sow may have an extraordinary susceptibility to the hog cholera virus, and even when given the proper dose of potent serum, may pass through a mild reaction, but severe enough to cause her to lose her pigs. This does not happen very often, however. Fischer<sup>6</sup> has published some statistics which would seem to indicate that there is not a great deal of danger in giving the double treatment to pregnant sows.

We are all living in hopes that some day a method will be found by which we will be able to permanently immunize hogs with a vaccine, thereby obviating the necessity of using highly virulent hog cholera virus. So far, apparently, all attempts have failed. Numerous attempts have been made to attenuate the hog cholera virus, both with heat and chemicals. Dorset and Niles,<sup>7</sup> of the Bureau of Animal Industry, and Graham,<sup>8</sup> of Kentucky, have reported unsatisfactory results after a number of trials. The great variations in immunity and susceptibility of different hogs, and the corresponding variations in virulence of different strains of virus, seem to be the stumbling blocks.

Pigs farrowed by immune sows inherit considerable immunity, which is gradually lost during the early weeks of their

life, and in most cases is completely lost by the end of the fifth week. Although this fact has been known for quite a while, no attempt to take advantage of it was made until Reynolds<sup>9</sup> and Beach tried to prolong this inherited, passive immunity by inoculating the pigs with virulent blood before the immunity had been lost. In the work that was done, the results were encouraging, and it is hoped that the work will be taken up again.

It sometimes happens that pigs will be born in the midst of infection, and grow to maturity with hog cholera all around them, without the protection given by vaccination. At the present time we have the third generation of such a strain of hogs, if the term may be used, at the serum plant at University Farm. These hogs trace back to a hyperimmune sow, and their immunity can probably be explained as follows: They inherited a passive immunity from their dam, and being kept on infected premises from the day they were born, they have probably gotten enough infection, which was constantly present, to give them an active immunity. This serves as a good illustration of what environment will do.

In conclusion I will give some figures, showing the results of the personal use of serum during the past two years. While the number of hogs vaccinated is not large, serum has been used under practically all possible conditions, and accurate records kept. The results of treatment were always obtained at least one month following the use of serum.

Condition of Herd.	Method Used.	Hogs Treated.	Hogs Died.	Per Cent. Died.
Healthy.....	{ Single	801	0	0.00
	{ Double	2,072	22	1.06
Infected.....	{ Single	728	74	10.16
	{ Double	581	16	2.75
Totals .....		4,182	112	2.68

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## VIRUS CARRIERS AS FACTORS IN THE SPREAD OF FOOT-AND-MOUTH DISEASE.

BY JOHN R. MOHLER AND ADOLPH EICHHORN, WASHINGTON, D. C.

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*(Continued from April Issue.)*

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These cases, to which a great many others might be added, should be considered as presenting substantial proof that outbreaks which occur in a stable after a considerable time following the recovery of the infected cattle are frequently brought on by virus carriers. The number of virus carriers appears to be relatively small. In the observed cases, young animals always appeared to be the carriers of the virus. It is still unknown what part of the body harbors the virus—whether the buccal cavity, the pharynx, or the nasal cavities. The length of time in which virus carriers eliminate the virus is also unknown. According to one of the cited instances, at least 7 months must be considered as the period. These facts are of the greatest importance in the eradication of the disease. The affected herds must be supervised for at least 7 months. Animals apparently recovered from the disease, if they are placed into healthy herds, must be separated for at least seven months from the healthy cattle.

The conclusions of Professor Loeffler relative to virus carriers are as follows:

“Regular supervision of such farms is indispensably required.

“One of the most important results of the researches concerning foot-and-mouth disease is, that the fact has been doubtlessly ascertained that, just as in numerous human infectious diseases, some of the recovered animals will remain carriers and continue the spreading of the virus.

“It seems that the number of such animals is limited.

“How long such animals can spread the virus, has not yet been ascertained. According to present experiences, even 7

months after the end of the epizootic, new infections have been caused by them.

"As yet no method is known to distinguish the virus spreaders.

"Infected animals are to be placed under observation for at least 7 months. They must not be offered for sale, and should be kept separated from healthy animals."

Nevermann in his report on foot-and-mouth disease prepared for the Tenth International Veterinary Congress held in London in 1914 also attached great importance to the virus carriers in connection with the spread of this infection. He claims that in the control of foot-and-mouth disease, it is absolutely necessary to give these so-called virus carriers due consideration, as otherwise, the results of the measures inaugurated for the eradication of the disease may prove fruitless. He also cites numerous instances in which virus carriers were indisputably the propagators of the disease. Such observations have been made, especially during the last outbreaks in Germany, which afforded the authorities a splendid opportunity for collecting data on this phase of the disease. All of the governmental veterinarians received instructions to make close observations relative to each outbreak with a view of tracing its origin. Special reports were required in all instances where the disease could be traced to virus carriers. As a result of these steps Nevermann was in a position to publish in the last annual report of the Veterinary Officers of Prussia over 100 outbreaks reported from different parts of the country in which virus carriers were apparently responsible for the dissemination of the disease.

Naturally, it was impossible to establish with positive certainty that in each instance the virus carriers spread the disease, or that other factors might not have been responsible for the outbreaks; nevertheless, in considering the large number of outbreaks reported to be due to such a source of infection, it is believed that the careful observations of the district veterinarians include only such cases as were obviously traceable to virus carriers.



Among the many instances cited in this report, a few will be given in which virus carriers were apparently responsible for the introduction of the infection. In the government district of Posen on a farm where the cattle passed through the disease the year previous, 6 steers which had been added to the herd became infected three months after their introduction. Since these animals originated from a place in which the disease had never existed, and as the stable had been repeatedly disinfected in a most thorough manner, and inasmuch as the disease did not then exist in the entire province of Posen, it is believed that some of the animals of the recovered herd disseminated the virus.

On a farm in the district of Ratibor, seven months after the recovery of the animals from foot-and-mouth disease, three cows were introduced, all of which contracted the disease. Before these animals were introduced, the barns, which were of the most modern construction and offered every opportunity for thorough disinfection, were disinfected in a most careful manner, as were all of the recovered animals. It must therefore be accepted that the three newly introduced animals were infected by a virus carrier in the recovered herd.

In the district of Erfurt, foot-and-mouth disease broke out in three animals which had been recently purchased and added to a recovered herd on a farm six months after the disappearance of the disease.

On an estate in the district of Goettingen, foot-and-mouth disease broke out among fourteen animals five days after their introduction. These animals originated in a district where foot-and-mouth disease had not existed, whereas the animals on the estate had passed through the disease several months previous. The interesting feature of this case appears to be the fact that in this outbreak only the fourteen newly purchased animals became affected, none of the recovered animals showing reinfection.

In addition to the above-mentioned cases, the report of Dr. Nevermann cites numerous instances in which the disease was transmitted by virus carriers, and those who are interested in the significance of the spread of the infection from such sources

are referred to the original publication, *Veröffentlichungen aus den Jahres-Veterinar Berichten*, 1914, pages 55 to 92.

The outbreaks in which the infection occurs after the lapse of a prolonged period following the recovery of infected animals may be divided into two groups. The first group would embrace those cases in which susceptible animals are placed into previously infected stables and subsequently become infected—in such cases, it might be possible that the virus was still present in some remote places not reached by the disinfectant, the newly introduced animals contracting the disease from such a source. The second group would include the cases in which recovered animals, after the disappearance of the disease, are introduced into healthy herds, thus infecting them. In these cases the disease usually appears among the animals of the healthy herd only after several weeks, and at times even after months. At the same time, the animals which brought the infection into the herd do not become infected.

Investigations which have been conducted in order to determine what part of the recovered animal harbors the infection have not been uniform in their results. Some investigators have found that the saliva of a recovered animal was responsible for the spread of the disease. In one instance, Loeffler succeeded in infecting susceptible animals with the saliva of a virus carrier. In other cases the virus is supposed to have been spread from the crevices in the hoof. Further study is therefore required in order to establish the exact localization of the virus in these carriers.

The recent studies by Zschokke are particularly interesting on this phase of the subject. He undertook the work of establishing to what extent the feet of recovered animals may be responsible for the dissemination of the disease, and according to his findings, the vesicles which occur in the skin of the interdigital spaces and the plantar cushion may also extend under the horny capsule forming their furrow-like spaces along the sensitive laminae of the wall and sole. He also found hidden vesicles in the hoof which did not open to the outside. It therefore appears possible that virulent lymph which is present in these loca-

tions penetrates between the horny structure where it becomes inclosed until it is brought to the surface by the natural wearing of the hoof, and is then responsible for the transmission of the disease.

The findings of Zschokke would explain the possibility of the occurrence of the disease in localities in which animals harboring the virus in such fashion are introduced into healthy herds, and it is considered possible that the greatest proportion of the virus carriers harbor the infection in this manner.

In countries where the eradication of foot-and-mouth disease is conducted by the enforcement of quarantine measures, these so-called virus carriers must therefore be a constant menace to the elimination of the disease, and if for no other reason than this, it appears that whenever the circumstances permit, eradication of the disease should be carried out by slaughtering the infected herd. The fact that recovered animals might transmit the disease for six or seven months to susceptible animals would cause a constant uncertainty and require a vigilance impossible of enforcement. The countries in which foot-and-mouth disease has prevailed for prolonged periods realize the difficulties which confront them in its control; and therefore in recent years the slaughtering method has gained favor in such countries. Even in Germany, where the eradication of the disease by slaughter appeared to be unreasonable owing to the peculiar economic condition of the live stock industry, the authorities have now adopted the slaughter method in all instances when the disease appears in isolated districts. Thus, in 1913, the German government expended over 2,500,000 marks for indemnities to owners whose stock was slaughtered on account of the foot-and-mouth disease. All the outbreaks which have appeared in the last decade in Great Britain have also been controlled by similar measures.

Experience with the disease in various countries indicates that once the virus has been spread over large areas of country the infection practically has to wear itself out before it subsides; but even then, the virus carriers may periodically start

new infections, particularly after the acquired immunity of the recovered animals has subsided. This reduced resistance in the animals will again afford an opportunity for the virus expelled by the carriers to assert its infective action, and outbreaks will start anew. These facts probably account for the periodical curves which are noted in the appearance of the infection throughout continental Europe, and if it were now possible for the respective governments to adopt measures by which they could eradicate the disease, they would gladly make the financial sacrifices which it would be necessary to incur, through the slaughter of the infected animals in newly appearing outbreaks. It is obvious that if the indiscriminate practice of saving infected animals should be followed, the control of the disease would be very difficult on account of virus carriers which might remain among the recovered animals. This is an additional reason why the slaughter of all the affected animals should be undertaken if it is desired to eradicate the disease within the shortest possible time and eliminate the constant menace of future reappearances of this burdensome plague.

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GOVERNOR INSISTS ON VETERINARIAN ATTENDING UNIVERSITY CLUB BANQUET: State Veterinarian Yard chanced to visit Canon City investigating a reported case of Foot-and-Mouth Disease, on the same day that the University Club was to hold a banquet in the evening. The president of the club invited Dr. Yard to attend the banquet, but the doctor declined, because of the fact that he had made all arrangements for his return to Denver, Pullman reservations, etc. At this juncture, Governor Carlson (for whom the banquet had been arranged—that the university men might meet Mrs. Carlson and himself, he being a strong university man) made a personal request of Dr. Yard that he remain for the banquet and give them a little after-dinner talk. The doctor appreciated the high honor and remained, representing New York University. This is written without Dr. Yard's knowledge and we trust will not meet with his disapproval.

## HOG CHOLERA AND THE VETERINARIAN'S RELATION TO SAME.\*

By F. B. WHITFIELD, D.V.M., DOTHAN, ALA.

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The above subject has been given me on which to write a paper for reading before this association. Though the name is a short one, gentlemen, there is embodied therein some of the most vexing and some of the hardest problems confronting the veterinarians of this state. It is a subject of the most vital importance to the farmers of our state in the livestock business, and also to you, the veterinarians of the state, who are depending on the farmer for a living. The more you see of this plague that is sapping the profits of a great industry from your people, keeping them handicapped in the production of food, the harder you should fight for its extermination.

Let us look into the cause of this dread, contagious disease which is annually destroying from fifty to sixty millions of dollars worth of our animals, making empty, as it were, hundreds of thousands of pork barrels each year. We are told by the bacteriologist that this disease is caused by an ultramicroscopic organism which has never been seen by the most powerful microscope.

The causes which we are most interested in, however, are those which foster the spread of the disease, in other words, the predisposing causes. Among these we will mention the following: State and county fairs, streams, buzzards and other birds, hog buyers and sympathetic neighbors, and last, but not least, the patent medicine quack.

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\* Read before Alabama Veterinary Medical Association, Auburn, Ala., March 26 and 27, 1915.

Many outbreaks can be traced to the fairs, for it is here that many hogs are brought together from all parts of the country, with little regard sometimes as to their condition or the health of the animals in the neighborhood from which they came. An infected animal bought by the farmer from such a place may cause the loss of thousands of dollars worth of hogs by being placed in a healthy herd. It is strange to see so many farmers, who seem to be intelligent men, make this mistake.

As to streams carrying this disease, I am sure that if you gentlemen could be with me in Houston County, where each man has a small stream running through his lots, you would be surprised at the number of cases that you would see transmitted in this way. Around a little town of Madrid in our county there are a great many of these streams, and on one occasion I went down there, during an outbreak of cholera in that community. Dead hogs could have been seen lying unburned out on the ground and in the streams, where the animals had gone to die. The stench in some localities was most repulsive and the air was, we will say, black with buzzards. These products of decomposition were swept down the stream to infect herds many miles away. These same buzzards could fly with other birds to other sections of the country and in this way infect the herds in the lots in which they would light to feed on other carrion. The dogs of the section in which such an outbreak occurred, by dragging the pieces of the dead animals from place to place, could scatter the infection.

Many cases of hog cholera are scattered by farmers borrowing the boar of their neighbor for breeding purposes. One of my clients, Mr. Crawford, of Dothan, loaned his fine boar to a neighbor for breeding purposes. This animal contracted the disease in two weeks. It is of utmost importance that we know from whence hogs come that we use for any purpose, and it is all the more important to know where our hogs go when we do loan them.

One of the hardest problems which the average veterinarian encounters in handling this disease is the way the farmers have



of letting their animals run at large. By this method I am sure many herds are contaminated, for we well know that to handle any infectious disease it is highly necessary to quarantine any and all infected animals and the premises on which they are quartered; keeping other animals away from them. Many cases of hog cholera are started by neighbors who flock to the farmer's house and to his lot to offer any assistance, which they are always too eager to render in cases of this kind. They go into the lots, handle the animals, get the excreta from the sick ones on their feet, go back into their lots and in this way scatter the infection among their well animals. The hog buyer in like manner carries the infection.

In no other case do I believe that the vendor of worthless medicines should receive heavier condemnation than is due that man who would, for the gain of a few dollars, deprive his fellow man of thousands of dollars worth of property and food for his family. Gentlemen, I refer to the patent medicine quack. May his stay with us be short and be terminated as speedily as possible. Already it seems that we can hear his death knell ringing, for with the men who the colleges of veterinary medicine are turning out each year in the field of service, Mr. Quack is going to the wall. He slips around guaranteeing cures with his wonderful hog cholera medicines, knocking the use of serum, and in this way prejudice against any treatment that may be good, is established by his failures.

Having determined some of the causes of this disease, let us briefly enumerate the symptoms. In the acute form we find that the following symptoms manifest themselves. There is marked rise in temperature, from 104 to 108 degrees. Loss of appetite and general depressed condition. The hog isolates itself from the herd and lies around burrowed in the straw and litter; exhibits a stiff, sluggish manner, being in a weak condition. First we may notice that the bowels are constipated, and later diarrhea may set in; this diarrhea being of an offensive odor. A hacking cough may be present and the animal's breathing may be considerably accelerated. The eyes may have a mattery discharge, and in some

cases I have seen the animal seems to be affected with gastritis, as evidenced by the vomiting of glairy material from the stomach. He loses his appetite and seems in some cases to be very thirsty as a result of the fever. In the chronic form the skin of the region of the belly assumes a parched appearance. These blotches may later be the foci for sloughing sores. I have seen these sores crust over in the hog that is recovering from the disease, these scabs falling off and leaving the skin covered by them, denuded of hair. The urine may assume a dark color as in other febrile diseases.

As to the period of incubation of this disease, the time varies, but from observation it is safe to place the estimate at from three to twenty-one days.

In this, as in other disease, our most trustworthy method of diagnosis consists in making a careful post-mortem examination of the carcass. In post-mortem examinations we may find the following lesions. Splotches or sores on the skin. These splotches may be found in most cases under the belly and between the legs. There may be a purulent conjunctivitis. Upon opening the body cavities, we find the following lesions: The stomach presents a congested condition of the mucous lining and small hemorrhagic spots are seen. In the large intestine in the chronic form of the disease we find the characteristic button-shaped ulcers; a great many times near the illeo-caecol opening; but in the acute form these are absent and instead we see a congested mucous membrane. There may be a diffuse enteritis in the small intestine. The spleen in the cases that I have examined was in some cases congested while in others there was very little change. The kidneys present in most cases small petechia, while in some cases this organ may be studded with red spots. The lymphatic glands are of a dark congested consistency, the black blood oozing from them on being cut into. The bladder may present cystitis. In the swine plague form, the lungs are congested very much as in pneumonia. There may be small petechia around on the serous walls of the thorax.

Now comes the process of treating hogs in this disease. Here we may say, more than in any other disease with which we have

to deal, that "an ounce of prevention is worth more than a ton of cure." This is perhaps the largest field of preventive medicine that the veterinarian of Alabama can be engaged in. As to the *Serum Simultaneous System* of vaccination, we can but repeat the words which, in a joking way, have been attributed to that famous old explorer, Balboa, who, as he looked out over the great Pacific Ocean, said, "Well, boys, it is a success." This preventive treatment has passed from the age of experiment and is now known to be a well-established and successful preventive.

As to the time that is suitable for the use of the simultaneous treatment for the prevention of hog cholera, I believe that it should be done as soon as the animals weigh twenty-five to fifty pounds. I believe that it is best to vaccinate all hogs in the herd as soon as they are large enough. In this way we are able to do it at the least cost, and thus the farmer can render his animals immune to the disease for all time. When the disease is in the neighborhood it is imperative that the animals should all be inoculated. A great many farmers will put the work off until cholera gets into their herds and then come running to you for advice. In this case, when the weather warrants it, I tell them to go home and kill all the hogs that they intend to use as food, for the use of the serum has not, in my practice, proved successful in that stage. One thing which is essential for the man's success in raising hogs, who does not vaccinate them as they become of the proper size, is to watch his neighbors' hogs as well as his own, for in this way he can determine when any animals around him are sick and can then go to work with the serum treatment before it is too late. I would recommend that the early treatment be given all animals that a man is raising for breeding purposes, for in this way he can build up a reputation for raising animals that are immune and in this way build up his business.

In my work I have good results by using the *Serum Simultaneous* treatment in the following manner. The first essential to success is cleanliness always. I use a 30 c.c. syringe of the

all-metal type for the serum and a small 2 c.c. syringe for the virus. The disinfectants I use are creolin and iodine. A small, ordinary drinking glass is used to hold the serum and an ordinary tin bucket is used for the creolin solution and cotton. The iodine is used on a cotton swab. A small pan with creolin solution is used to hold the syringes. With two good, strong assistants the animal is secured, being careful not to injure it, especially in the case of pregnant sows, for I believe that rough handling of pregnant sows is directly responsible for abortions which occur sometimes, after treatment. Next I clean off the space in the axillary region of the limb with the creolin solution. Next the iodine is painted on the surface, which has been dried off with a piece of cotton. Next the serum is injected into the loose area in the axillary space, the dose being drawn into the syringe and measured by the graduated scale on the plunger. The needle is withdrawn and the skin pinched at the point of injection to prevent the escape of the fluid from the puncture. Next I inject the prescribed dose of virus after cleaning a point on the inner surface of the ham. The animal is now turned into a clean lot.

In herds where the disease is present I use only the *Serum Treatment* in those animals which show hypothermia. The others are given the *Serum Simultaneous Treatment*. My success in herds in which the disease has already broken out has not been very marked; nearly always fifty to seventy-five per cent. of them have died. Some of the bad luck I have had I attributed to impotent serum. My advice is to use the serum which has proven successful, even though some other firm may offer you special inducements in the form of commissions to use their products; for by the use of an unreliable serum you may place the use of serum in bad repute and in this way injure the prospects for the eradication of the disease and be detrimental to your business as well.

Below I will enumerate some of the cases observed by myself:

*Herd No. 1, A. D. Whiddon, Owner*—These animals were

given the serum simultaneous treatment, because there was an outbreak of cholera near. Two of them were left unvaccinated. These two animals died, the others remaining healthy.

*Herd No. 2, Mr. Patterson, Owner*—In this case a neighbor's herd above his on a creek died of cholera. The infection, no doubt, was carried by the creek to his place. I vaccinated the herd belonging to Mr. Patterson. The animals in this herd all succumbed to this disease, except five out of the seventy vaccinated. The serum only was used in this case.

*Herd No. 3, Mr. Daughterty, Owner*—These animals were on the same creek which watered the animals owned by Mr. Patterson. They were not vaccinated at all and about seventy-five per cent. of them died.

*Herd No. 4, G. W. Pilcher, Owner*—This herd, consisting of twenty-five head, were vaccinated before placing on peanuts left by hogs which had died from cholera. These animals have not contracted the disease yet and the time when they were vaccinated was about two months ago.

*Herd No. 5, Mr. Crawford, Owner*—These animals were infected by the loan of a boar which became infected and subsequently transferred the infection to the herd on being replaced after the neighbor had used him.

*Herd No. 6, Ed. Cannady, Owner*—These animals were given the serum simultaneous treatment with the exception of one that was sick at the time of administering the treatment. He received a double dose of serum and recovered; the remainder did well.

*Herd No. 7, Mr. Sanders, Owner*—These animals were sick at the time. Gave serum alone. Lost one-half of them.

*Herd No. 8, Mr. Sanders, Owner*—Gave these simultaneous treatment. None sick. One of these died with cholera in two weeks.

*Herd No. 9, Mr. Rogers, Owner*—Vaccinated one hundred for him. None sick at time of vaccination. No bad news from them so far.

*Herd No. 10, Mr. P. C. Bradshaw, Owner*—Cholera all around him. Twenty-five animals inoculated. All well.

The following is a table giving the dose of serum and virus used in this work, together with the weights of the animals:

Weight of Hog, Pounds.	Serum, C. C.	Virus, C. C.
20	20	$\frac{1}{4}$
50	25	$\frac{1}{2}$
75	35	$\frac{1}{2}$
100	50	$\frac{1}{2}$
150	60	1
200	70	$1\frac{1}{4}$
250	80	$1\frac{1}{2}$
300	90	2
350	100	2
400	110	2

In giving the farmer advice on the subject of hog cholera, it would be well to enumerate the following points. Keep your premises clean. Water your stock from your own well if possible, and if your well does not hold enough, dig it deeper, for we can dig wells or bore them with a lighter heart than in digging graves. Do not borrow your neighbors' animals. Keep people out of your lots and attend to your hogs yourself. Watch your neighbors' animals so that you can tell when your hogs will be in danger. If your animals die from cholera, do not go and buy more and place them in the same lot unless they are given the simultaneous treatment. Do not throw your hogs out on the open ground, but burn the hog and a stump at the same time, thereby killing two birds with one stone. Raise hogs that are worth the money spent in vaccinating them, and then you will not stop to consider the cost of serum treatment too long. Beware of hog cholera cures as sold by quacks. If you want information, go to your veterinarian at all times and ask him about different diseases of hogs. If he is not interested in your welfare enough to talk to you, and does not seem to want to help you, cut him out and get another man to do your work. If your hogs have cholera, tell your neighbors so that they can profit by the



information which you have given them. Feed cooked feed at all times. Vaccinate your hogs before they have an opportunity to contract the disease and in this way insure them against cholera. Don't buy hogs from around in the country unless you know what you are getting. When you do buy them, place them in a pen by themselves until twenty-one days have passed. Then, if they are still well, use them in your herd. This particularly refers to boars. Be careful to know that there is a rigid system of inspection at the fairs before you show any animals there. Bury all dead animals on your place and in this way keep buzzards away. Study the method of vaccination and learn to do it yourself, having first learned under the directions of some veterinarian. Know that at all times, success in the hog business, as in all others, is only attained by close attention to details and the study of your business.

Right here I may say, gentlemen, that one of the worst things with which we have to combat is the ignorance of the average farmer. We are vexed sometimes at the strange things they will do when we do not stop to think that most of them have no training in the prevention of infectious diseases. The average farmer in our state will talk politics for hours and then, when he gets his man elected, knows nothing of the duties which he is expected to perform. Few indeed know that they hire a congressman to work for them as their public servant. He does not seem to know that to get the best information possible that he has only to write for bulletins on work that this Government has spent thousands of dollars in hiring men to acquire this knowledge which may be gleaned from them.

Another thing which we have to fight to a finish is the patent medicines which are guaranteed under the pure food and drug laws of our country. Our great Government sees fit to permit this stamp placed on thousands of worthless nostrums, and I am sure that this very thing has done a great deal to keep our work along this line from being effective. Uncle Sam may spend his thousands in hiring experts, but as long as he permits such things as this, he spends his money in vain; for with a farmer

once fooled by some patent hog cholera medicine or serum, it is the hardest thing in the world to convince him that the serum made under the Government's direction is good. Fool him once and you have a chronic grouch on your hands.

In fighting the disease, first get the confidence of your man. Let him know that you have his interest at heart. Tell him the cause of the disease and point out the road he is to follow in combating it. Whenever you vaccinate animals for a client, try to have his friends there to see it done. Give them a little talk on the disease and speak in terms that they can understand. When you are doing the work for an intelligent man, offer to show him how it is done, and under your directions, let him do some of the work himself. Some here will say that this is taking money out of your own pockets, but stop and think what the financial condition of this country would be if every farmer had, say, twenty-five hogs to sell yearly made possible by this vaccination. I have men in Dothan whom I know, who have been inoculating their hogs for years and as a result of this they are making money on them. You can rest assured that the man who sells his hogs will always have money with which to pay you for your trips and you all know that the sweetest sound to a veterinarian's ear after the patient is out of danger is the rattle of the cash in his pockets.

The last Legislature of our state has seen fit to establish a hog cholera serum plant at Auburn. For this plant we are indebted to our State Veterinarian. He has worked for years on this one thing and at last it seems that his labors are to be crowned with success. We may stop and ask ourselves, "What does the establishment of this plant mean to the people?" It means this. More hogs and better hogs. More meat for our people and better fed people. The opening of another field of production for our farms. Less cotton and higher prices. Another product to be shipped and greater prosperity for our state.

In my opinion, and I believe I may add in the opinion of all veterinarians here present, this fight for the eradication of hog cholera is the most important one we are waging. The people

of Alabama are large meat consumers and small producers. Hundreds of thousands of dollars worth of western meats are shipped into our state which we could raise at home. The use of serum in eradicating this disease has proven a success in other states and it will in ours. The present conditions demand that we raise more and more food products for our people. Gentlemen, the *American Hog* is one of the most important of these crops, and on him, to a great extent, hinges the prosperity of our people. It has been demonstrated that we can raise hogs as cheaply as in any section of this nation, and it is up to us, the veterinarians of this state, to render any and all the assistance possible to our greatest friends, and I may say the greatest people on this earth, the American Farmer. Upon them you depend for your living, for, with the advent of the gas engine and automobile, your city business is fast falling away; as the horse in the city is doomed and those owned by our country friends are our only salvation. Therefore, let us keep these resources in as good condition as possible.

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AN IMPERIAL VETERINARY SURGEON OF THE FIRST CENTURY. It is not generally known that the Emperor Vespasian at one time in his career gained a living as a veterinary surgeon. His full name was Titus Flavius Vespasianus. He was appointed a General by Nero, to put down the insurrection amongst the Jews, although at the time he was said to be in disgrace for not having shown sufficient admiration for the singing of Nero.

In A. D. 69 Vespasian was declared by the Army Emperor of Rome, succeeding Vitellius, whose reign lasted less than a year, and who was nicknamed "the Hog," owing to his extravagance in feasting.

Vespasian came from the middle classes, and was described as being industrious, moderate, free from any grave faults, and liberal to literary and scientific men. He reigned for ten years, and died A. D. 79, aged 70 years, and was succeeded by his son, Titus, famous as the General who destroyed Jerusalem A. D. 70.

The above details are taken from the *Home University*, January, 1898, edited by the late Jonathan Hutchinson, M.D., LL.D., the Educational Museum, Haslemere. E. WALLIS HOARE.

—(From *The Veterinary News*.)

## BIOLOGICAL THERAPEUTICS.\*

BY ADOLPH EICHHORN, WASHINGTON, D. C.

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Biological therapy has made great advancement in recent years, and has become a very popular mode of treatment with physicians and veterinarians. The application of these products is being utilized to a great extent, both for prophylactic and curative purposes, and the results in many instances have been satisfactory beyond any doubt. For instance, vaccination against blackleg, anthrax, tetanus and typhoid fever has established the preventive value of this method of treatment.

Biological products are being employed to a greater extent in veterinary practice than they are in human practice, this being due primarily to the fact that veterinarians have to deal with a greater number of infectious diseases among the various species of animals.

The large number of products which are now being prepared for the prevention and cure of infectious diseases are not in all instances of a value which would assure its users of beneficial results. In the use of biological products for the prevention and cure of a disease it is of course primarily essential that the causative agent should be included in the preparation of same, and as a matter of fact, in most instances where this is the case, the results are usually much more satisfactory than where the product does not contain the causative factors of the disease.

I do not intend to criticize manufacturers of biological products for preparing and marketing certain products the value of which has not yet been established beyond a doubt, since our present knowledge of some of the diseases is so limited that it would require, in some instances, a wide field of experience, extending over a very large number of cases, before conclusions could be definitely reached as to whether vaccination in a given

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\* Read before the Veterinary Medical Association of New York City at its April, 1915, meeting.

instance is to be of value. Only by a successful isolation and cultivation of the causative agents can we hope to prepare successful preventive vaccines. One of the exceptions to this rule is the hog cholera serum, where without the isolation of the causative agent a potent immune sera is being prepared which is giving good satisfaction. It is not necessary for me to dwell upon biological products the effects of which are well established, but I desire to take up briefly the products which are being prepared for the prevention and treatment of certain diseases of which the etiology is still a matter of uncertainty. A great number of manufacturers of biological products are marketing bacterins for the prevention and cure of equine influenza. I do not know whether any one has attempted to collect statistical data relative to the effectiveness of this bacterin, but it sure would be interesting to have this information, particularly so as to its preventive value. Influenza bacterin almost invariably contains streptococci, which is supposed to be the main factor in the action of this product. Other micro-organisms—staphylococci, pneumococci and colon are also contained principally, I believe, to combat a secondary infection which results in this disease. The streptococci have been incriminated as the causative organisms, and while some of the investigators have claimed this association, more recent findings would indicate that equine influenza is not caused by any of these organisms. The findings of Gaffky appear to indicate that the disease is caused by an ultra-visible virus, and in the latter course of the disease, secondary invaders make their appearance which are responsible for the findings of these various kind of bacteria during the course of the disease.

These findings have also been substantiated by other investigators. Furthermore, there is an inclination to make two distinct separations of equine influenza, one the catarrhal, and the other the pectoral form. While the catarrhal form is attributed to be due to the ultra-visible virus, the cause of the pectoral form has not yet been cleared, although cellular inclosures were demonstrated in the mononuclear round cells of the secretion



which apparently have some association with the etiology of the disease, they possibly being protozoan. The former accepted view as to the etiology of this disease cannot be satisfactorily substantiated. The streptococcus pyogenes equi, and the B. equisepticus, two organisms which were given prominence in the etiology of influenza, have never fulfilled the requirements imposed upon an organism in the study of the etiological pathogenicity. No doubt these organisms play an important part in the pathogenesis of equine influenza, but the numerous attempts with cultures of these organisms by many investigators and also by the writer failed to produce the classical form of the disease, although considerable quantities of cultures have been employed in this test. In view of this fact, it appears that bacterins prepared from these organisms, or any others which are at times found in the affected tissues, cannot afford a protection against the disease.

Experimentation in this line is rather difficult, since to carry it on satisfactorily it would require the selection of young animals from sources where one would be certain that the disease had not been prevalent, and that the animals used for the experiments possess all the natural susceptibility for the disease. We are in possession of information where the immunizing value of influenza bacterins gave good results, and again instances where total failure was the result of such vaccination.

Similar is the case with canine distemper. The findings of Ferry and Torrey, who claimed that the B. bronchisepticus is the specific cause of dog distemper has not been substantiated by subsequent investigations. The Imperial Board of Health of Germany failed to establish the etiological relation of this organism to canine distemper. On my trip to Europe last summer I inquired of numerous investigators and directors of canine clinics in the different veterinary colleges of Europe as to their views relative to the connection of B. bronchisepticus to canine distemper, and not in a single instance could I obtain an affirmative view of it being the cause of the disease. It will require



further studies to establish the etiology of this disease, and, like influenza, at present we have to concede only secondary importance to the organisms which enter into the preparation of canine distemper vaccines and bacterins. The results obtained from protective vaccination against dog distemper with bacterins containing the bronchisepticus and other invaders are not altogether in favor of this preparation. They, however, might be of great value in diminishing the severity of the disease by counteracting the affections of the secondary invaders.

But diseases in which the specific cause has been positively determined offer a broad field for treatment with biological products. Yet, in some of these, the good results hoped for have not been achieved. I desire to call attention to infectious abortion, possibly one of the most important diseases of cattle, which is spreading to an alarming extent, causing tremendous economical losses. There is no doubt as to the etiology of this disease. The Bang bacillus is now recognized as its causative agent. Both bacterins, vaccines and also serums have been prepared with the aid of this organism towards combating the disease, but as yet, specialists, who have given years of study to this affection, have failed to see any beneficial results from their use. Exaggerated claims are made at times as to the value of some of these products, but practical experience has not yet justified them. It is possible that our knowledge as to the amount, the time of injection, and the number of injections, has not yet been sufficiently determined, and that further investigations in this line may offer a solution of the problem as to how to treat the disease with specific biological products.

Abortin has also been given some prominence as a valuable biological product for the purpose of determining the affected animals in a herd. It is supposed to constitute a diagnostic agent similar to tuberculin and mallein, the animals injected with it responding with a general and thermal reaction if affected with the disease. Some reports spoke favorably of this diagnostic agent, others again failed to obtain positive results in many cases in which the disease had been established both by clinical observations and also by the complement-fixation tests.

These are instances in which biological products have not established their efficacy. But other products, on the other hand, when judiciously applied, are of great assistance to the veterinarian. Among these I desire to give the highest prominence to tuberculin and mallein as diagnostic agents for diseases which are of the greatest importance to the livestock industry. With the aid of these biological products the presence of latent cases can be accurately determined in most instances, and thereby the control and eradication of the disease is rendered possible. I wish here to call your attention to the successful work carried on in Austria with the aid of ophthalmic mallein, where glanders has been successfully eradicated in the last few years. Austria has been at all times badly infected with glanders, but through the enthusiastic and untiring efforts of Professor Schnürer the eradication of the disease from the country has been accomplished almost entirely by the aid of ophthalmic mallein. The aid of laboratory biological tests have been employed only in a few doubtful cases.

I need not dwell upon the value of the tuberculin test, as its value is known to every veterinarian.

Vaccination against anthrax has been proven to be of great value in localities where the disease is prevalent. At a matter of fact, vaccination against anthrax, as discovered by Pasteur, was one of the first demonstrations of the success of vaccines as a means of preventing infectious disease. Millions of animals have been successfully immunized by this method. It is, however, essential that the vaccine shall be potent. The anthrax vaccine prepared by the Pasteur method, however, is not very stable, and when not kept under suitable conditions it may become inert within a period which is claimed by the manufacturer as being the limit of its protective value. Failures from this vaccination may therefore be due to improper handling and storing of the product.

It is rather surprising that the Pasteur method of vaccination is still practically the only one utilized in this country, since in all other countries the simultaneous method, known also

as the Sobernheime method, is gaining favor. In anthrax it is possible to produce a serum of high potency. An efficient serum is considered to protect in 5 c.c. doses cattle or horses from the natural infection. Such serum, together with vaccine, affords an immunity against anthrax which lasts at least one year, and has the advantage over the Pasteur method that it requires only one handling of the animals, whereas by the Pasteur method the procedure has to be repeated twice, ten days apart. It is hoped that the manufacturers of biological products in this country will take up the preparation of immune sera against anthrax, and that the veterinarians adopt this method, which, without a doubt, will gain the favor of the stock owners in preference to the double vaccination.

Hog cholera serum has been probably the most important biological product produced in recent years. Its effectiveness in hog cholera caused by the ultra-visible virus is no longer questioned. In this instance it is also essential to have a potent serum, and to adhere to the strictest precautions against contaminations, both in the handling and administration of the serum. In spite of the fact that the protective value of hog cholera serum has been established beyond a doubt, nevertheless numerous complaints are made which question the beneficial effects to be derived from immunization against hog cholera. Various factors are responsible for such failures. Among these, probably the most commonly recurrent one is a mistake in diagnosis. Practitioners are very prone to establish a diagnosis of hog cholera in case several animals die, without determining the character of the post-mortem lesions. An insufficient knowledge of other infectious diseases of swine may also be responsible to some extent for the failure in hog cholera vaccinations. A serum without the proper potency, or on the other hand, in the simultaneous method, a potent virus, without the potent serum, may bring about bad results. It should be understood that hog cholera serum represents one of the crudest biological products which we have at our command for combating disease, since we have no means of properly standardizing it, and to establish with any

degree of certainty the amount of protective substances contained in the blood serum.

We are much more fortunate in this regard with tetanus antitoxin. In this product it is possible to establish accurately the number of units contained per c.c. of the antitoxin, and thereby we can always safely establish a uniform dose for the protection of animals. Thus, for instance, in the experiments conducted by Dr. Mohler and myself, we have definitely established that 500 units of tetanus antitoxin are always sufficient to protect a horse from a positive artificial infection with tetanus, even if the administration of this serum has been undertaken three to four days after the infection has taken place. Of course this applies only to the prevention of the disease. The curative action of tetanus antitoxin is very problematical, even excessively large doses at times failing to relieve the affection in the slightest degree. This, however, can be readily explained by the pathogenicity of the tetanus toxin, which, when once the disease is established and is progressing, the toxin becomes anchored in the nerve cells, producing there morbid changes which can no longer be remedied.

The recent good results obtained by the administration of tetanus antitoxin directly into the subarachnoidal space of the spinal cord in the treatment of tetanus in man, might also prove beneficial in veterinary practice. For this purpose a special outfit is prepared for the intraspinal administration, consisting of a long needle, sterile rubber tubing and a glass cylinder containing the antitoxin. The needle is inserted into the dorsal surface of the neck at the point about one inch to one side of the roots of the main and about six to seven inches posterior to the ear. The point for inserting the needle may be easily located by drawing an imaginary line connecting the postero-external angles of the wings of the atlas, and taking a point about one inch to one side of the intersection of this line with the median line. The needle should be cautiously pushed downward and inward until a slight resistance of the dura is felt, into the intervertebral foramen, between the atlas and axis. As soon as the dura has

been punctured, which can be easily felt, the stilette of the needle should be withdrawn, leaving the needle in position for connection with the rubber tube attached to the cylinder. The antitoxin will then flow by gravity into the subarachnoidal space. Of course, it is essential to hold the cylinder in a high position so that the flow by gravity will readily take place. I have not yet heard or seen a publication as to the effect of this method of treatment, but whenever the administration of tetanus antitoxin for curative purposes is undertaken this method should be given preference to the subcutaneous injections, since it is obvious that the antitoxin injected in this manner will quickly reach the parts in which it is to exert its neutralizing action upon the toxin.

It is obvious that in the application of biological products for the treatment of infectious diseases, the best results may be expected when the product contains the specific virus against the disease for which it is being administered. Furthermore, even the specific virus does not afford the desired protection in certain localities where strains of the virus from other localities have been used for its preparation. Thus, for instance, a certain field virus from a particular locality when used for the preparation of a vaccine or immune sera will usually give a more potent product for the respective diseases of that locality. For this reason it is advisable in preparing biological products to use different strains of virus from different parts of the country through which a polyvalent action may be obtained. The best results, of course, may be expected from the use of autogenous products. That is, the organisms isolated from an outbreak of the disease when prepared into a vaccine will produce the best results for that particular herd. It is a well known fact that pathogenic organisms increase and decrease in virulence during various outbreaks. This is observed very frequently in cases of foot-and-mouth disease or equine influenza, when, during the early part of the outbreak, the disease is not very virulent, but which gradually increases and later again decreases in its virulence.



This is also observed in disease producing organisms which live saphrophytically in healthy animals. Due to some unknown influences, such organisms become pathogenic, causing at times tremendous outbreaks, finally losing their pathogenicity and living again as saphrophytes in healthy animals. Among these may be mentioned the *B. bipolarissepticus* on the hemorrhagic septicemia group, and also the organisms of the hog cholera group. For the first group a successful vaccine is being prepared by cultivation of the organisms under attenuating influences. This method has been tried out on an outbreak of hemorrhagic septicemia among the buffaloes in Yellowstone National Park, in various outbreaks of hemorrhagic septicemia among cattle in Virginia, and also by Professor Dimock, of the Veterinary College of Ames, Iowa, who reported very favorable results from the use of such a vaccine.

I do not deem it necessary to enter into the discussion of the individual biological products which are being used for the treatment and control of infectious diseases. The principal point I desire to bring out is that biological products, when properly selected and applied in the treatment of certain diseases will yield very good results. In all such cases it is essential that the veterinarians avail themselves of such aid whenever the opportunity presents itself, especially so when such treatment may be applied for the prevention of disease. On the other hand, the veterinarian should be discouraged from the use of biological products which have not been sufficiently tested out to prove their usefulness. Such indiscriminate use will tend to bring in disrepute other products which have proven very effective weapons in the control of infectious diseases.

There is a tendency at the present time to employ bacterins for almost every infection. They are being prepared against most of the pathogenic organisms producing disease, irrespective of whether they are beneficial or not. At times exaggerated claims are made for such products, and the veterinarians are very apt to make use of them regardless of whether the cases are adapted to that form of treatment.



This applies especially to the bacterial vaccines, which, at the present time, have gained such great popularity with the veterinary profession. Polyvalent, mixed, strepto, staphylo, colon, etc., bacterins, are injected into animals at times without any basis for such treatment. I do not intend to condemn any of these preparations, but I desire to strongly advise veterinarians to use good judgment in the selection of such preparations, since in using biological products there is more or less an inclination to disregard or neglect other means of treatment which would probably benefit the animals by far more than a useless injection of an inert product for the particular case.

Biological products have an important place in veterinary therapeutics, and I am certain that we are only in the initial stages of their ultimate usefulness. For this reason, it is all the more important that the progress of this line of therapy should not be retarded by undue claims and subsequent disappointments.

It is only natural that manufacturers will exert their efforts towards increasing the sale of any product they may prepare, and in doing so they are inclined to cite only the good results which are being obtained from such products. The practitioners should therefore exercise the proper care in the use of such preparations, particularly so since they are continually increasing in number and the clinical data as to their effect is either too meager or the available information is so confusing that it is almost impossible to establish their value.

Another important feature to be considered in biological therapy is the method of the keeping of these products and their administration. All biological products are very sensitive to exposure to light and temperature. It is necessary to keep these products from exposure to light and in a cool temperature in order to avoid deterioration. Practitioners have not means of establishing changes which may take place in a product and may at times use it after it has become inert. This phase is particularly important in connection with immunizations of highly infectious diseases where, with the aid of vaccines, as

for instance with anthrax, we desire to check the spread of the disease, or to prevent its occurrence in localities where the disease is very prevalent. When in such cases an inert vaccine is used, both the veterinarian and stock owner are often at a loss, if the disease appears, to explain the reason. Unfortunately such cases are quite numerous, and from my personal experience in testing out vaccines from various sources, I can state that the failure to keep the vaccines under proper conditions is often responsible for the bad results.

The administration of the biological product should also be given proper consideration. It is not sufficient simply to uncork the bottle, or break the neck of the ampule, draw up the fluid into a syringe, insert the needle under the skin and inject the material. In all instances it is essential that the veterinarian should keep in mind the fundamental principles of sepsis and asepsis, and with these products it is even of greater importance than with the ordinary medicinal remedies.

Since July 1, 1913, the Department of Agriculture has had control over the manufacture of biological products for the treatment of domestic animals by an Act of Congress of March 4, 1913. The numerous complaints which were received from time to time relative to the impotency of some of the preparations and also the fact that in some instances the use of the products were directly responsible in causing outbreaks of disease made the necessity for such control obvious. This supervision is no doubt of far reaching importance for the veterinarians, as it assures them of reliable preparations. It should, however, be recognized that the potency of all products cannot be satisfactorily tested, since at the present time we have no means of establishing accurately a standard for such products, and for this reason I call the attention of the veterinary profession to their own responsibility in connection with the use of some of the preparations of biological products.

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OUR PROFESSION, is the subject of Professor Sisson's address on page 256 of this issue. Everyone should read it.

## THE REPRODUCTIVE ORGANS OF THE HEN.

By B. F. KAUPP, PATHOLOGIST, ANIMAL INDUSTRY DIVISION NORTH CAROLINA EXPERIMENT STATION. AUTHOR, DISEASES OF POULTRY AND THEIR TREATMENT, ETC., W. RALEIGH, N. C.

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The physiological basis of reproduction of the female fowl is the left ovary and left oviduct. The right ovary and oviduct are absent, due to the fact that they degenerate during embryonic life.

The ovary is located in the sublumbar region of the abdominal cavity and to the right of the median line and touching the left adrenal gland and just anterior to and below the anterior portion of the kidney. It is located superior to the liver and at the juncture of the abdominal and thoracic cavities. It appears as a cluster of spheres or globe-shaped bodies which in the adult hen number from 900 to 3,500. Figure 1 letter *a* represents an ovary of an adult White Wyandotte pullet, which ovary has never functionated. The undeveloped ova are noted in a grape-like mass. Figure 2 letter *a* represents an active ovary from a three-pound White Leghorn bantam hen. This hen was developing one egg a day, having laid an egg only three hours before being killed. *b* Represents the yolk of an ovum which would have probably been fully developed in less than twenty-four hours. The ovum is surrounded by a thin membrane or capsule very vascular, as shown in figure 2. This capsule is continued back onto the stalk which attaches it to the central fibrous supporting portion of the ovary. This portion is attached to the structures of the back. When the yolk portion of the ovum is fully developed the capsule ruptures and the yolk falls into an expanded portion of the oviduct at *c* Figure 2. This portion of the duct is very thin and gradually merges into a thicker wall, in which portion the mucous membrane is thrown into folds. The yolk is surrounded by a delicate membrane, the vitelline membrane, which holds the mass intact, thus giving it the spherical appearance.

One by one the yolks are developed to full size or to maturity from the mass of undeveloped ova of the ovary as illustrated in Figure 1 letter *a*. Figure 2 letter *b* shows an ovum or yolk reaching full development, and letter *d* shows a non-vascular line the stigma where the follicular wall is becoming thin preparatory to discharging the yolk into the oviduct. The discharge of the yolk into the oviduct is sometimes spoken of as ovulation.

The yolk has its origin in a minute sphere containing a nucleus, as illustrated by Figure 3 letter *a*. This nucleus marks the point of the development of the embryo chick after fertilization.

DESCRIPTIONS OF CUTS FOR REPRODUCTIVE ORGANS OF THE HEN.

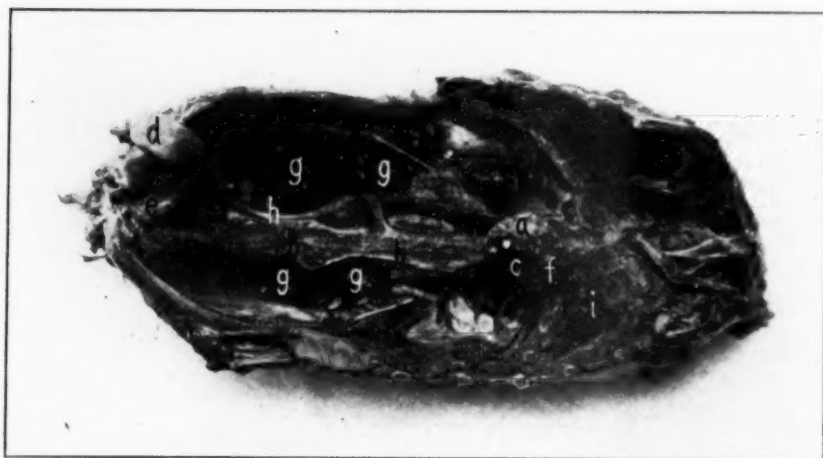


FIG. 1.—*The Pelvic Organs of a Pullet:* *a*—ovary, *b*—oviduct, *c*—infundibuliform portion or origin of the oviduct, *d*—rectum, *e*—cloaca into which the oviduct empties, *f*—adrenal gland, *g*—kidney, *h*—ureter carrying the secretion of the kidney to the cloaca, *i*—lung.

It is noted to be located in the central portion. When the cell begins the development of the yolk there is noted first a deposit of fine granules of yolk around the central nucleus. These granules of yolk material gradually extend towards the cell wall. This deposit is known as the latebra or the flask-shaped mass of white yolk forming thin layers of layers of yellow yolk.

Later, when the ovum has reached a size of about 0.66 millimeters in diameter, the nucleus is noted to occupy a position

just under the vitelline membrane and at the end of the flask-shaped mass, as illustrated in Figure 4 letter *a*.

Later there is formed several layers of yellow yolk deposited around the central mass of white yolk which is apparently brought about through the secretion of the peripheral layer of protoplasm.

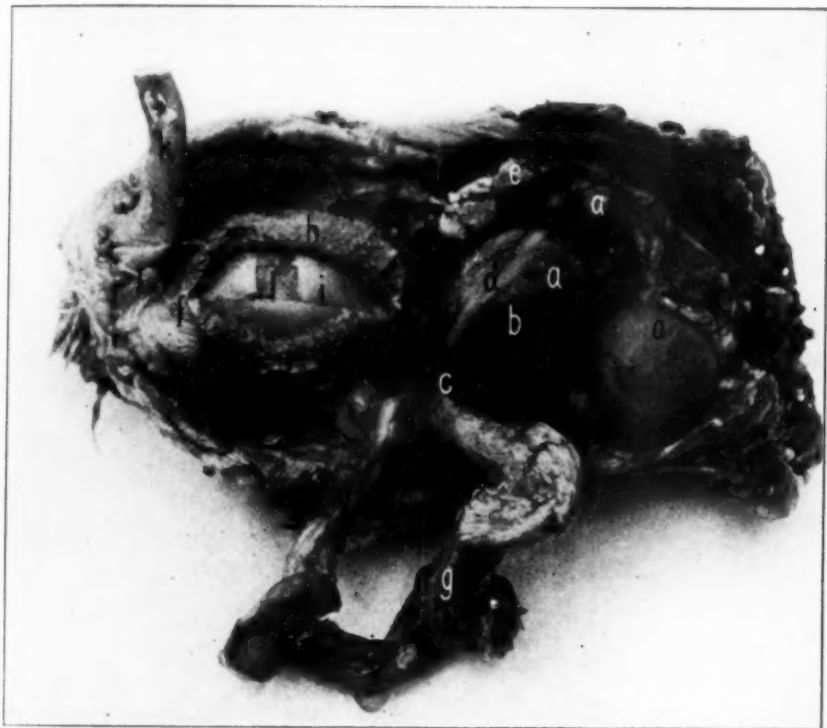


FIG. 2.—*The Pelvic Organs of a Hen:* *a*—the ovary, *b*—ovum fully developed, *c*—infundibuliform portion of the oviduct, *d*—stigma or point of rupture of follicle, *e*—a degenerated ovum, *f*—portion in which the shell is formed, *g*—a portion of the oviduct torn from its ligaments and laid over to one side, *h*—showing the villus-like mucous membrane, *i*—albuminous portion of newly formed egg, *j*—the yolk of the same, *k*—the rectum, *l*—the cloaca.

The spermatozoa, Figure 5 letter *a*, make their way by aid of their terminal flagella or tails through the oviduct and fertilization takes place as soon as the yolk has entered the oviduct. Only one spermatozoon is utilized in this fertilization process. The balance are repelled from the cell.

After the yolk passes into the oviduct albumin is formed around it in the second or upper portion by specialized columnar epithelial cells.

The contraction of the muscles of the oviduct force the contents along. When the albumin formation is completed the newly forming egg passes into the isthmus or third portion,

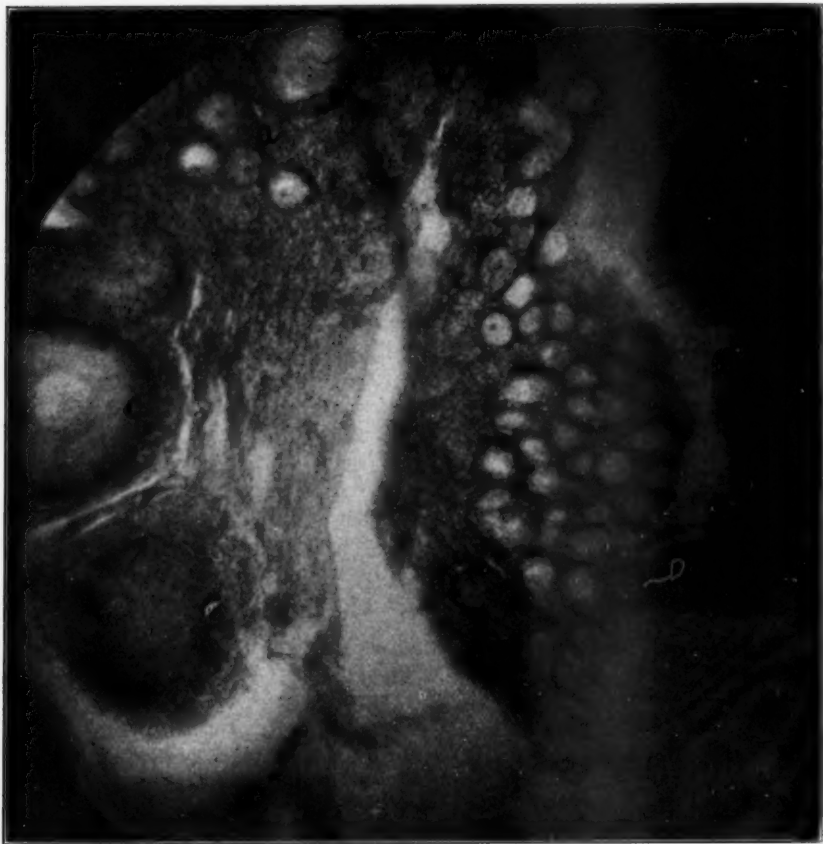


FIG. 3.—Photomicrograph of a Section of Ovary of the Hen: *a*—undeveloped ova showing their nuclei, *b*—one in which deposit of yolk has begun, *c*—a section through the center showing the germinal vesicle.

where through the activity of other specialized cells a membrane is formed around the mass.

In the lower portion, as illustrated in Figure 2 letter *f*, the calcium layer or shell is formed to protect the delicate mass within from external violence.



The formation of the albumin around the yolk in the upper portion of the oviduct is probably accomplished in about three hours. The membrane surrounding the egg mass is formed in the isthmus in about the same length of time. The formation of the shell and the expulsion of the egg will be accomplished in from twelve to eighteen hours.

The yolk is of less specific gravity than the albumin, hence it gradually rises with the blastoderm uppermost if allowed to remain the blastoderm may become adherent to the egg membrane and cause death of the embryo, hence the necessity of turning

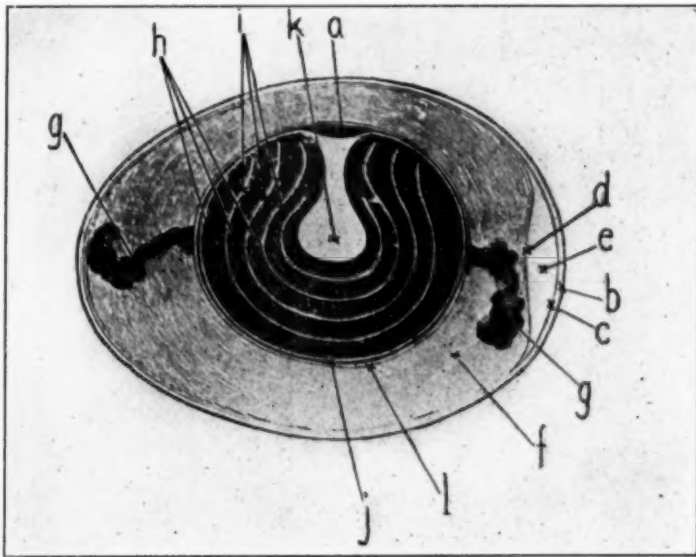
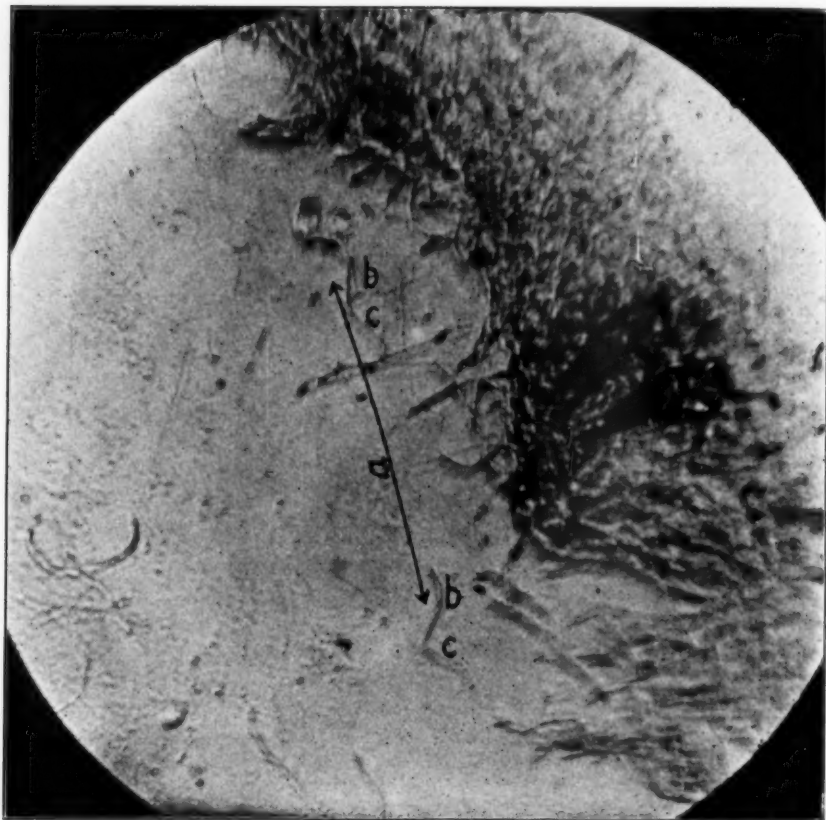


FIG. 4.—*Diagrammatic Structure of the Egg:* a—the blastoderm, b—the shell, c—the outer shell membrane, d—the inner shell membrane, e—the air cell at the large end, f—the albumin, g—the chalaza, h—the dark yolk, i—the white yolk, j—the vitelline membrane, k—the flask-like white yolk, l—a fluid albuminous layer which immediately surrounds the yolk.

the egg kept for hatching and during the first eighteen days of incubation.

It would rather indicated that there is just as high a production of eggs from an individual without the service of a male as with such service. In other words the spermatozoa have no influence in the rate and number of the development of eggs.

The egg as laid consists of an outer shell coating giving it a gloss or so called bloom, which may be considered as a protective coat. The shell consists largely of lime salts. An outer shell membrane located just inside the shell and an inner membrane which dips across at the large end of the egg forms the air cell. This membrane consists of a fibrous structure, the fibers of



THE SPERMATOKA OF A COCK.

FIG. 5.—Spermatozoa from the semen obtained from the vas deferens of a S. C. White Leghorn Cock. *a*—two spermatozoa, *b*—the head, *c*—the tail.

which extend in all directions. The air chamber becomes larger as incubation goes on, in order to meet the respiratory needs of the embryo or as we may say the fetus, the head being almost invariably developed in that end if the egg lays on its side. The

albumen and a portion of the yolk becomes appropriated for the formation of the embryo chick.

Immediately surrounding the yolk there is a dense layer of albumen and outside of this a less dense layer.

The albuminous portion (egg white) consists of 86.2 per cent. water, 13 per cent. proteid, 0.2 per cent. fat and 0.6 per cent. ash and possesses a caloric value of 1,608. The egg yolk consists of 16.1 per cent. protein, 33.3 per cent fat, 1.1 per cent. ash and 49.5 per cent. water, with a caloric value of 265.

The hen egg corresponds to the ovum of higher animal life where after fertilization of the ovum development of the fetus takes place normally in the uterus of the mother. Said ovum is made up of a male and a female pronucleus as in the hen egg and protoplasm and deutoplasm, the deutoplasm being nutriment for the embryo till it has developed sufficiently to draw on the nutriments of the blood from the mother's uterus. In the case of the bird there is no uterus in the sense that we speak of it in higher animal life, hence no uterine placenta because there is no fetus developed in the bird, but to take its place there is stored up an abundance of food taking the place of the deutoplasm and maternal nutrients of higher animal life. Nature has been elaborate in storing up food for the embryo and the baby chick, for the yolk is apparently almost wholly intended to be drawn upon the first seventy-two hours of the baby chick's life or until it is strong enough to follow the mother and till hatching of the brood is over. An examination of a newly hatched baby chick will show this yolk in the abdominal cavity and much still unabsorbed.

The active or functioning oviduct is a rather large, tortuous tube varying in size and length, according to the size of the hen, and filling a large part of the left half of the abdominal cavity as illustrated in Figure 2. In a single comb Rhode Island Red pullet weighing six pounds and producing an egg a day, the oviduct was found to measure twenty inches in length. In a White Wayndotte pullet weighing five pounds and whose ovary and oviduct had not yet become active the oviduct measured but five inches. See Figure 1 letter *b*.

It can readily be seen that in a very fat hen with the intestines, liver and other organs and a functioning ovary and oviduct as illustrated in Figure 2 the abdominal cavity would be crowded. When this crowded condition arises there may be a partial or complete cessation of the function of the ovary and oviduct hence the hen ceases to lay.

The oviduct originates at the anterior portion of the abdominal cavity, Figure 1 letter *c*, by an expansion at the ovary in such a way as to receive the yolk when it is discharged from the yolk sac of the ovary. This portion is anatomically known as the funnel, ostium abdominale or infundibulum. The oviduct may be divided into 5 portions, as follows: The principal albumen secreting portion, a more constricted portion, the isthmus, the shell gland portion, sometimes referred to as the uterus, and the outer passage by some known as the vagina. The vaginal or outer portion of the oviduct is guarded by a rather well-developed sphincter muscle. The oviduct is attached to the surrounding structures by dorsal and ventral ligaments.

The oviduct consists of three main coats, namely: An external serous, a middle muscular being made up of an outer longitudinal and an inner circular layer, and an internal mucous coat which is thrown into folds both primary and secondary and provided with columnar epithelial cells. The oviduct has great power of dilatation, but tears easily if the traction is too much in one direction. A ruptured oviduct sometimes occurs.

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NEW VETERINARY MEDICAL EXAMINING BILL IN PENNSYLVANIA: A new bill, the main object of which is to provide an entrance requirement of four years' high school work, or its equivalent, for those entering upon the study of veterinary medicine has just been signed by the Governor of Pennsylvania. It is a product of the State Veterinary Medical Examining Board, and is strongly endorsed by the profession of the state. This is a move in the right direction. If the entrance requirements are right, there is not much trouble in the examination for license to practice.

## REPORTS OF CASES.

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### GANGRENOUS MAMMITIS IN A GRADED COW.\*

By H. T. Moss, D.V.M., Dayton, Ohio.

This is of a case in a graded cow that I found down in the pasture, which after examination I diagnosed as a case of gangrenous mammitis, probably resulting from, or was a sequel to phlegmonous mammitis.

Of the history of the case, I gathered the following: The first symptoms of trouble appeared about three weeks before I was called; at that time just following parturition appeared swelling, redness, pain at milking, decreased amount of milk, etc. I presume it was nothing more than a simple congestion of the udder.

Treatment was given by the owner and the local quack, which was of the order of local applications and irrigation of the quarters, with the condition gradually becoming worse from day to day. As I stated above, I found the animal down with her muzzle to the ground and in such a weakened condition that she was unable to rise, even with help. The udder was greatly swollen (oedematous), a dirty mottled gray in color, cold and clammy to the touch, a bloody discharge oozing from each teat, and, one might say, from the entire gland. A distinct odor of putrefactive tissue, with loss of life and feeling to the whole mammary structure. As to the general condition of the animal, she was naturally greatly depressed and emaciated, with a subnormal temperature, imperceptible pulse, weakened but fast respiration, tendency to diarrhoea, slight discharge from nostrils, and with an expression showing all the symptoms of extreme sickness, no desire for food or water. The general depression was no doubt due to septic intoxication, absorption occurring from the diseased mammary gland which was responsible for the above symptoms.

As to treatment, I first gave a subcutaneous injection of

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\* Read before the Ohio State Veterinary Medical Association, January 7, 1915.

strychnine gr.  $\frac{1}{2}$ , followed by a drench consisting of spts. of camphor and aromatic spts. ammonia in linseed oil. I then made an incision into each quarter, allowing for free drainage, cleaned out each quarter and bathed the udder with a warm solution of septico. I arranged that the cow should be drawn into the stable with clean and comfortable surroundings.

The following line of treatment I left to be carried out with these instructions: Every two hours for three doses a drench was to be prepared consisting of camphor and aromatic spts. ammonia in linseed oil. The following day and to be continued, nux vomica and echinacea was to be given three times a day, and the udder to be bathed and cleansed with warm solution of septico three times a day. Food and water were ordered in moderation.

I made a second trip two days later. The patient was standing up and eating, temperature 103, pulse good, respiration near normal. A line of demarcation had made its appearance. At this time I removed with the knife and scissors as much of the diseased tissue as possible without producing hemorrhage, feeling that it would not be best to remove the gangrenous udder in its entirety, due to the fact that by doing so would naturally produce profuse hemorrhage, resulting in a weakened animal by depletion; the patient was already very weak as it was, and the shock might have produced death. At this time I again put the patient on nux vomica and echinacea, the bathing with septico was kept up, and in addition I prescribed tr. iodine to be painted over the stub of the udder and over line of demarcation twice a day.

Several days later I made a third visit. I found that all necrotic tissue had sloughed away, leaving a fresh, healthy surface of granular tissue; the general condition of the animal was practically normal. I advised in cleansing the wound with a solution of sodium chloride to follow with the use of tr. iodine as before. It was but a matter of a week or so till healing had entirely taken place. Of course, the animal was only fit for slaughter, but the owner was more than satisfied.

The two chief points of interest to me are the use of spts. camphor and aromatic spts. ammonia as diffusible stimulants, in practically all cases of great depression and collapse. And not removing the gangrenous tissue in its entirety due to the fact, as I stated, that the shock might have produced death. I don't mean to say that this procedure would hold good in all cases where gangrenous tissue was present. I am just speaking of this particular class of cases.



## RUPTURE OF THE VAGINA IN A MARE.\*

By R. D. WAY, D.V.M., Cleveland, Ohio.

*"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."*

I was called to see the case about six p. m., July 27, 1914. The patient, a black mare seven years old, used in a truck, was brought in from work about 4.30 p. m. Before I was called a veterinarian in the neighborhood had been called and asked that Dr. Cooley or myself be called as we did the work regularly, and he was not certain of his diagnosis, but left some medicine, a solution of gryalipitol to be given 1 oz. every hour.

I examined the pulse, normal; temperature normal, 101.4; respiration rapid and labored as if in pain. Facial expression anxious, and occasionally looking back at the sides. Muscles tense, but walked off straight except a little stiff behind; lungs normal; visible muc. membranes normal; rectal examination revealed nothing, but upon passing my hand into the vagina I found a rupture of the dorsal wall just posterior to the os uteri about  $3\frac{1}{2}$  or 4 inches long; so that I could pass the hand into the peritoneal cavity and grasp the intestine. Animal destroyed. Post-mortem was held about 10 a. m. July 28, 1914. This showed rupture of the dorsal wall of the vagina posterior to the os uteri, and a round hole about  $1\frac{1}{4}$  inches into the substance of the left kidney. The puncture in the kidney looked as if it had been made by a blunt instrument. The kidney was loosened from its attachments and about a quart of blood was clotted around it. The holes in the mesentary were very regular and were not inflamed for more than an inch around them.

The driver had been in the employ of the company for about a year and no one else had been in the barn when he was not there during the day. He had driven the mare eight months and liked her. In fact, was in charge of the barn of ten horses and could have his pick. He said she did not eat her usual feed at noon and was sweating when he came in in the morning. (Was that the truth?)

The case looked to me as if a broom handle was just the instrument to cause the wound; and there was a broom in the barn that looked as if the handle had been washed since it had been used. Could a man exert force enough to cause such a condition with such a blunt instrument, or did he start it in the vulva and the horse's feet slip out on the concrete floor and

\* Read before the Ohio State Veterinary Medical Association, January 7, 1915.

force the instrument in by sitting on it? Could the horse work in that condition without giving more evidence of pain, and how extensive could the inflammation be?

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### GANGRENE OF THE PENIS—AMPUTATION—RECOVERY, IN A BEAGLE PUP.

By CHARLES THOMPSON FAKE, D.V.M., Granville, N. Y.

On the afternoon of March 4th, I was called to see a Beagle pup nearly a year old, and the owner could give me no history of the case, but stated that on the afternoon before he had found the dog in the condition I now saw him.

There was a pronounced erection of the penis with paraphimosis existing to a certain extent. The protruding organ had an unnatural frozen feeling. There was no systemic disturbance whatever at this time. I reduced the organ by cold applications, and returned it into the prepuce. As it would not stay in place I fastened it there by placing, on the end of the prepuce, a tape, which was removed every five hours to allow micturition.

The owner reported daily on the case, and on the 6th inst. stated that the animal was vomiting, and that there was some diarrhoea present. These conditions responded readily to treatment.

On the 7th inst. he told me that the penis was turning black, and I requested him to bring the dog to the office, and I would amputate the frozen part. On the evening of the 9th he appeared with his dog, and I found the penis in a state of dry gangrene to within a quarter of an inch of the bulbus glandis, at which point I decided to amputate.

The dog was placed on the table, and I dissected down to the healthy tissue, using the ethyl chloride spray. I cut down to the urethra. Then allowing this to protrude a quarter of an inch beyond the healthy tissue I completed my amputation.

But slight hemorrhage followed the operation and my patient went home with tail wiggling and is now apparently a normal dog.

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### DIABETES IN A DRAFT GELDING.

By FRANCIS ABELE, Jr., Quincy, Mass.

Was called to take a case where another doctor had gone on a vacation and left a draft gelding suffering from "rheumatism"

in left fore leg, following a case of distemper pneumonia of about 6 weeks' duration. Horse was painfully lame, no one place in leg seemed particularly sore, owner had bandaged the one place they usually do, that is the fetlock. Prescribed salicylate alternated with potass. iodide. Lameness left front leg and now the left hind leg was even more lame. No one place in the leg again showing the pain, yet propulsion was extremely painful. Horse lay down most of time. Bed sores showed angry; not disposed to heal easily. A persistent polyurea yielded but slightly to iodide, but pain lessened considerably under palmetto. The watery discharge gave way to a thick milky urine, coming away often and painfully.

I was aware I had a diabetes due to influenza infection but how much infection I had and where I had it puzzled me. The lameness pretty well left the hind leg. Horse was exercised lightly in wagon and after a few days was found dead in stall.

Postmortem showed, capsule of liver in places loose; both kidneys had a pus like discharge. One kidney was a deep red, congested almost necrosed color. Examining the lungs found one (left), was adherent to rib wall for a space fully 12 inches by 6 inches. That part was gangrenous but wholly or as far as I could make out, encapsulated.

Had I checked up on the other doctor's work and examined the lung by percussion and auscultation, there is no doubt I would have suspected the origin of my "rheumatism" and my diabetes. Whether I could have changed prognosis much, is a question. There was no odor to respiration.

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## MECHANICAL INTESTINAL OBSTRUCTION IN A CAT.

BY THE SAME.

A cat which showed gastritis, or gastro-enteritis, vomiting bile, could not retain food or water, moped, etc. Had had oil with no result. Gave enema of about 3 or 4 pints of water, but could not get cat to vomit. Expected water would soften mass and it would then come away. It did not. Post mortem showed a long piece of cord line doubled up so that it completely plugged the intestine for about six inches.

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### A PECULIAR MONSTROSITY IN A CALF.

By C. W. BARRETT, D.V.S., Pasadena, Cal.

Received a call April 1st to go to a ranch owned by a German, who was very much excited, stating his cow had "cast her withers." Upon my arrival and inspection of animal I saw membranes hanging from vaginal opening. Cow was four years old and owner said she had been bred October 18, 1914.

Well, I proceeded to deliver the foetus, which was about 12 inches long and fully developed, having a bill instead of a mouth.

The cow was in a corral (and had been kept there when not in pasture) with a goose. Cow was a very nervous animal.

Will state that the goose was not a *gander*, but in some manner the foetus grew a perfect bill about one inch long, composed of horny tissue of the same character as its feet.

Upon cutting the membranes from around the dead foetus and showing the monstrosity to owner he exclaimed, "That Dam Geese." Can you beat it?

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NEW YORK STATE VETERINARY MEDICAL SOCIETY will hold its 1915 meeting at Ithaca, August 3, 4 and 5. President Fish waited to fix the dates until the A. V. M. A. dates were fixed, so that there would be no conflict. As now arranged there will be ample time to attend the New York State meeting before going to Oakland.

GOVERNOR DOES NOT FAVOR RETROGRESSION.—Governor Hammond yesterday placed his first veto on a bill passed by the Legislature. He returned the bill providing for licensing as veterinarians any person who has been engaged in the work for twenty years, and also persons who have served a certain amount of time in the Spanish-American War and pronounced proficient by the commanding officer.

Anyone practicing for ten years and who has spent two years in a reputable college could obtain a license under the proposed law.

"The bill clearly is legislation in the interest of a few individuals and repudiates requirements heretofore imposed upon the applicant for license," Governor Hammond's letter says.—(Minneapolis, Minn., *Tribune*, April 21, 1915.)

## ABSTRACTS FROM EXCHANGES.

### ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

CANINE FILARIASIS [*S. Mitra and C. Ganguly*].—Red Kangaroo hound dog was treated for a wound of the shoulder. He was doing well, when, of a sudden, his temperature rose to 104 degrees F. Febrifuges had no effect, and for several days the thermometer varied between 102 and 104. Examination of the blood with microscope revealed the presence of filarial embryos, which varied in number at different times of the day, less in the morning but quite numerous in the evening. Attempts to reproduce the trouble by inoculation failed. The author thinks these filarias belonged to the *Dioofilaria immitis* on account of their dimensions which measured about 300 microns.—(*Vet. Journal.*)

PERINEAL HERNIA—OPERATION [*Henry Taylor, F.R.C.V.S.*].—Bitch had a swelling of the perineum which did not seem to disturb her for a long time. Lately it has enlarged considerably and caused discomfort to the dog. It has reached the size of an orange and has a thick root or neck.

After anesthesia, a vertical incision was made from near the anus to near the vulva. Very abundant and troublesome hemorrhage accompanied this step of the operation. The mass of the hernia was enucleated and the neck ligated, the flood of blood then being quite abundant. The skin was sewed up after being assured of no injury being made on the bladder.

The bitch was in a state of collapse, and remained for two days unable to stand. Recovery nevertheless took place without trouble. The removed mass was composed of very vascular omentum.—(*Ibidem.*)

TO RELIEVE NASAL OBSTRUCTION [*F. T. Trewin, M.R.C.V.S.*].—Puppies, especially Pekingese and bulldogs, have often very narrow nasal orifices, which interfere more or less with their breathing. They exhibit disturbing symptoms and especially when in the act of drinking.

To relieve them, the author has had recourse in two cases to an operation which has brought about a perfectly successful result. It consists in the "excision of an elliptical piece of skin just about the wing of each nostril, suturing this together in a



similar manner to what is done with the eyelid in entropion. The operation wound heals by first intention and gives no further trouble."—(*Ibid.*)

SEPTIC METRITIS AND PARTURIENT LAMINITIS TREATED WITH PHYLACOGEN AND ADRENALIN [*Alfred Lenie, F.R.C.V.S., D.V.S.N.*].—A Shire mare, eight months pregnant, aborted. With a pulse of 96 and a temperature of 106 degrees F., she presented all the symptoms of septic metritis, and manifest complications of parturient laminitis. After removal of the after-birth, which was hanging from the vulva, grey or drab in color, and after the taking off of a second foetus found in the uterus, chinosol was freely used to disinfect, and attendance to the feet was prescribed.

Fifteen c.c. of Phylacogen (P. D. & Co.) were administered, and renewed the next day. After forty-eight hours the condition began to improve. The symptoms of the metritis were gradually subsiding but the condition of the feet remained the same. Adrenalin in Parke Davis & Co.'s tablets was then given for three days in succession, and finally the condition of the laminitis improved. Medical treatment was then stopped, and general hygienic attendance brought the case to final recovery in a few days. The Phylacogen had cut short the metritis, and the Adrenalin brought out an abortion of the laminitis.—(*Vet. Record.*)

EQUINE TUBERCULOSIS [*Capt. A. N. Foster, A.V.C.*].—Aged chestnut gelding has no history about his health previous to this. He has always performed his work regularly and satisfactorily when one day he went dead lame on one fore-leg. It was then noticed that he has lost flesh, which was supposed due to too hard work. The lameness was due to extensive bruising of the heels and large side bones.

Although a week of rest was given, no improvement took place. Fracture of the os pedis or navicular was suspected. The horse was placed on observation and as he did not seem to improve, and there was little likelihood of his being restored to usefulness, he was destroyed. Boiling of the lame foot showed that the side bone and extensive navicular disease were the cause of the lameness. All the mesenteric glands were much enlarged, but yet no other macroscopic lesions could be found. Examination of these glands proved them to be tuberculous.—(*Vet. News.*)

FOLLICULAR MANGE IN DOG [*Arthur Whitfield, M.D., F.R.C.P.*].—Male Bedlington terrier when one year and seven



months old had distemper and mange began insidiously afterwards. The disease was treated, but kept on increasing, and was finally considered incurable. His general health seemed yet fairly good, but the appearance of the skin was very bad. He had no more coat on his head, body and limbs. The skin was harsh, wrinkled, and covered with follicular papules and pustules. There was some itching, but yet not very severe. A 10 per cent. liniment of eucalyptus oil and thymol in olive oil was made, and applied for several weeks without any effect whatever. The treatment was then changed. The dog was scrubbed daily with a 5 per cent. solution of hyposulphite of soda and after this has been well soaked into him, he was rubbed with a 3 per cent. solution of glacial acetic acid, an old preparation used in human medicine. The treatment was carried out daily for five months, during which time the hairs had begun to grow. Then the applications were made but three times a week, and after a short time stopped, the recovery being complete. The disease did not return, and for four months no single suspicious spot has been noticed on his skin which is perfect.—(*Vet. News.*)

ON EQUINE MANGE INFECTIONS [*A. V. Noel Pillers, F.R.C.V.S.*].—Alluding to an article on the subject, the writer criticizing it, says: "Whenever extended microscopic examinations have been made, my experience has shown that: 1st. Chorioptic or symbiotic mange is the commonest equine form. It is often present in cart horses and is often present alone. 2nd. Psoroptic mange is the second commonest. In clean-legged horses, it is usually the only form present. When it occurs in cart horses, chorioptic or symbiotic mange may also be present; especially is this so where the stable management is neglected. 3rd. Sarcoptic mange does not number five cases out of every 100 cases of body mange examined. It may be associated with psoroptic on the one hand and symbiotic on the other. *In a very few and rare cases*, in cart horses, the three forms have been found on the same animal."

This writing was to the effect of correcting a statement made in the article which he criticizes, and intends to show that with regard to mixed infections of equine mange, simple cases of psoroptic do occur specially in light horses. In cart horses, the symbiotic forms may often be present as well. All three forms on the same animal are very rarely encountered.—(*Vet. Record.*)

## CORRESPONDENCE.

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### WHAT IS CAUSING THE ABORTIONS?

Cortland, Ohio, April 1, 1915.

*Editors, AMERICAN VETERINARY REVIEW, New York City:*

DEAR SIRs—I am having trouble with a herd of registered Holstein-Fresians aborting from one to three weeks before end of gestation period and, studying the case carefully, am very much at sea regarding cause of condition. I put all my experiences with certain oil and other facts together and arrive at the conclusion following, be it right or wrong or all theory and not practical, I leave it to the fraternity to discuss. Herd is valuable and fed very scientifically, each one getting fed according to her yield, butterfat per cent. and maintenance demand. I consider the owners the most accurate and energetic dairymen that I have ever met. At present writing they have several cows in A. D. D. test.

Post-partum examinations show live calves, all membranes enveloping calf are perfectly healthy and securely attached to cotyledons, very seldom being able to remove them before 72 hours elapse and decomposition sets in, when they can be removed very easily and completely from cotyledons. Thus, I can find no diseased conditions present in genital organs or membranes.

My location is in center of fine dairy country and practice is fully two-thirds that of cattle. After having several very stubborn cases of inpaction in cattle and pulling them through with "most any old thing"—cottonseed oil as an experiment after severe purges would not purge them and stimulants simply kept the patient alive. More stimulants and cottonseed oil were used—recovery; and I had faith in *oleum gossypii seminis* and stimulant for nerve endings in bowels and for spinal cord, but my next trouble was the animal aborting upon recovery if very far advanced in pregnancy. Now this herd is fed very highly and the protein content of feed is of considerable cottonseed meal. And, to shorten this writing, does cottonseed meal contain enough of the active principle of the cotton root to cause abortion in cows?

Fl. ex. cotton root bark—*Extractum gossypii radice fluidum*  
nat. order: Malva cane. Botanical name: *Gossypium herbaceum*

linne. Action—Abortifacient. Comparing the above with our cultivated domestic plant one will see that we are using the seed of a plant that parts of which will cause abortion.

Respectfully,

Dr. P. W. MILLER.

\* NOTE.—We do not believe that Dr. Miller's trouble is due to the feeding of cottonseed meal. The class of men that he describes his clients to be would certainly know how to feed cottonseed meal, and when properly and judiciously fed it is perfectly safe. Of course if continuously fed in large quantities, that would be a different matter. Our esteemed collaborator, Dr. John F. De Vine, who has an extensive practice amongst dairy cattle, and who is Professor of Cattle Pathology at the New York State Veterinary College at New York University, in New York City, says: "There are at least 5,000 dairy cattle in my locality fed from two to four pounds of cottonseed meal daily without any effects upon gestation." And from *Farmer's Bulletin* No. 655 U. S. Dept. of Agr., April 10, 1915, we extract the following in support of the above:

"COTTONSEED MEAL FOR THE BREEDING HERD.—It is not advisable to feed bulls on large quantities of cottonseed meal for long periods, as the opinion prevails among many stockmen that it impairs the breeding powers of the animal. It can be fed to them in reasonable quantities throughout the winter, however, with little danger. From 2 to 3 pounds of cottonseed meal may be fed daily along with some other feeds, such as crushed corn, bran, corn silage, and some good hay.

"For feeding to breeding cows there is no feed which equals cottonseed meal in small quantities. The breeding herd can be wintered very economically by feeding about 2 pounds of cottonseed meal per head per day with some silage, stover, and other farm roughage.

"In 1912 a large herd of breeding cows were wintered in Mississippi by feeding them 2 pounds of cottonseed cake per day, with all the oat straw they would consume and what roughage they got from the old corn and cotton fields. The cattle were wintered very economically, as they were fed but three and one-half months, and they were in good condition when spring came. In one experiment in Alabama the cows were permitted to run in the stalk fields and in a small canebrake all winter, and from January 23 to May 7 they were given about 2 pounds of cottonseed cake per day. They were in fair condition when spring came and had been wintered very economically.

"Throughout Virginia, Maryland, and parts of the corn belt the cows may be run in the stalk fields until about November 15, when they should be taken up and fed about 2 to 2½ pounds of cottonseed meal per day, 15 to 30 pounds of corn silage, depending upon the amount available, and whatever roughages they will eat, such as corn stover, hay and straw. In sections where losses have occurred from cornstalk disease, the practice of turning cattle into the stalk fields should not be followed. If there is no silage, a small quantity of corn may be used with the cottonseed meal and the other farm roughages. A pound of cottonseed meal is usually worth about 2 pounds of corn, so a farmer can readily calculate which will be the more profitable feed."

A free discussion with the object of arriving at the actual cause of the abortions, is solicited.—[Editor.]

## "CITY-BRED" VETERINARIANS NEED PRACTICAL EXPERIENCE.

Brookings, S. D., April 6, 1915.

Editor, AMERICAN VETERINARY REVIEW,  
509 West 152d street, New York City:

MY DEAR SIR—Your March, 1915, edition has been forwarded to me and on page 664 there appears an article in which I referred to members of the veterinary profession as "Hoss Doctors." In my speech at the Tri-State Stock Breeders' Association I tried to show the people what a silly thing it was for the law makers of the different states to give authority and recognize graduates of veterinary colleges as being competent to treat all

kinds of livestock while as a matter of fact a large majority of the graduates in veterinary medicine are *city-bred boys* and do not know how to feed cows, hogs or sheep when they are well, let alone knowing enough to prescribe for them when they are sick.

I still maintain my point, that the city-bred boys ought not to be allowed to practice until they have had practical experience with livestock, and, secondly, that our veterinary colleges do not give enough practical training with the diseases of livestock other than horses.

I enclose you herein copy of my correspondence with Professor Stange, Dean and Director of the Veterinary College at Ames, Iowa. Note what he says. My experience with these graduate veterinarians has been such that I would not trust them with any kind of an animal of mine outside of a horse, and we have had graduates in this state, and have to-day, from some of the best veterinary colleges in the United States.

Tell me to what extent you are training the boys in your own veterinary college in the diseases affecting cattle, sheep and swine. I expect you, too, gather a few horses from the city and teach the boys a great deal about the theory of diseases, then send them out to practice at the expense of the stock growers.

A student from the Kansas City Veterinary College said I was perfectly right, that they did not receive the experience with cattle, sheep and swine that they did with horses.

Yours truly,

JAMES W. WILSON,  
Director.

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The foregoing letter is the result of an article that appeared in the March issue of the REVIEW on page 664 as follows—and was forwarded to Prof. Wilson by Dr. Stange, whose letter of transmittal follows it.

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PROFESSOR WILSON NEEDS CLOSER ACQUAINTANCE WITH VETERINARIANS: Reading in the Sioux City, Iowa, *Tribune* the address of Prof. James W. Wilson, of the Agricultural College, Brookings, S. D., before the Interstate Association of Farmers and Breeders, we were impressed with the soundness of Professor Wilson's judgment on some things, and his utter lack of comprehension of the veterinary profession of to-day. We would urge that the professor cultivate a closer acquaintance with veterinarians, and assure him that he will be relieved to find that they are a scientific body, well versed in diseases of

all animals, thoroughly conversant with sanitary science, and that the "hoss doctors" he refers to belong to a past generation.

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DR. STANGE'S LETTER TO PROF. WILSON.

AMES, Iowa, March 16, 1915.

Prof. J. W. WILSON,  
Brookings, S. Dak.:

Dear Professor Wilson: Under separate cover I am sending you a copy of the AMERICAN VETERINARY REVIEW, which I trust will be of interest to you. It contains, among other things, a reference to some statements concerning the veterinary profession, and I have taken the liberty to make that reference. I wish to assure you that the veterinary profession as a whole is doing its utmost to serve the live stock industry of this country, and, no doubt, could benefit by helpful suggestions from those directly concerned and interested in the production of live stock in this country. I have no doubt but that your remarks were intended for the best of the work in the future.

Trusting that you will pardon me for taking this liberty of writing you, I am,

Very truly yours,

(Signed) C. H. STANGE.

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PROF. WILSON'S REPLY TO DR. STANGE.

BROOKINGS, S. DAK., March 23, 1915.

Mr. CHAS. H. STANGE,  
Ames, Iowa:

DEAR DOCTOR STANGE—I have yours of March 16th, also received a copy of the VETERINARY REVIEW, and note the mention.

Am glad to know that at least one institution is training boys along other lines than that of doctoring horses. I made the statement in Sioux City that the bulk of our veterinarians were trained in cities where they had mostly horses to work on and did not get the practice of treating the different diseases of cattle,

sheep and swine, and yet the law recognized them as being entirely capable along these lines. I think a practical farm experience necessary before a veterinarian receives his degree, as too many of our city boys are slipping into that profession who lack the very rudiments of the profession, and that is to know how to handle live stock.

Thanking you very kindly for sending this, I remain,

Yours truly,

(Signed) JAMES W. WILSON,  
Professor of Animal Husbandry.

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DR. STANGE'S REPLY TO PROF. WILSON.

AMES, IOWA, March 26, 1915.

Prof. JAMES W. WILSON,  
Brookings, S. Dak.:

DEAR PROFESSOR WILSON—I have your letter of March 23d, and it makes the entire matter concerning remarks very clear to me. There can be no doubt but that your position in the matter is correct in that veterinary students should be trained and educated under conditions as nearly as possible similar to those under which they will be called to practice after graduation. In other words, I do not believe that city bred and educated boys can be turned out into our rural communities and give the live stock men the service they deserve. I am glad that at least some of our progressive representatives of the live stock industry are appreciating these facts.

I wish to assure you that I appreciate your letter.

Very truly yours,

(Signed) C. H. STANGE.

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\* NOTE.—While some of Professor Wilson's arguments may have some foundation, we believe that in the main he is wrong. It is our belief that practically every veterinary college of today includes in its curriculum a complete course on the diseases of all domestic animals, paying just as much attention (and often more) to the diseases of cattle, sheep and swine, as to the horse and dog. In addition to which, under zootechnichs, they give a complete course on breeds and breeding, feeds and feeding, etc.—including the horse—so that we do not see how even a city-bred boy after passing his examinations in such an institution can go out with *no knowledge of how to feed or prescribe for animals other than the horse*. It is our belief, however, that most of the city-bred boys become city practitioners and vice-versa. Replying to a *direct* question as to what is done in the institution with which the editor is connected, in regard to preparing the boys to meet conditions among farm animals, we would say that they are given a thorough course in zootechnichs, and are instructed in the diseases of cattle, sheep and swine, by a veterinary practitioner from the breeding districts, who gives them a very thorough training. For those city-bred boys who anticipate taking up a country practice, we heartily commend a term of service with a country practitioner.—[Editor.]



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## OBITUARY.

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### GILES S. HOSMER, M.D.C.

Dr. Giles S. Hosmer, of Cleveland, Ohio, met his death on April 22, 1915, by a collision of his automobile with a trolley car. The accident occurred as thousands of others have; *i. e.*, by trying to beat a train or an electric car to a crossing. In this case the doctor was returning from a call, accompanied by a friend, and seeing a trolley approaching a crossing in the outskirts of Cleveland, Dr. Hosmer, who was driving the car, put on an extra spurt of speed, but had evidently misjudged the speed of the interurban car, and the auto was struck and wrecked. The doctor was killed instantly, and the man that was with him died a short time after reaching a hospital.

Dr. Hosmer was a graduate of the Chicago Veterinary College, class of 1909.

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[Data from Dr. Lambert, Columbus.]

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### J. HOWARD LEONARD, D.V.M.

Dr. J. Howard Leonard, a young veterinarian, graduate of the Veterinary College of the Alabama Polytechnic Institute of the class of 1913, died recently at Belfast, Tennessee. He was a young man of excellent character and fine qualities. At some time in his life he became tuberculous, and death claimed him as a victim of the great white plague. The fight against this widespread and fearful disease is not limited to the human practitioner. Death claims some of our brightest and youngest veterinarians.

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[Data from Dr. Cary.]

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### NORTHWESTERN VETERINARY COLLEGE.

It is usually a sad task to write the obituary notice of one you have known. In this case, while lacking intimate acquaintance with the subject of this sketch, although a diligent effort to acquire it was made, all the sad features usually associated

with an obituary notice are lacking and we take great pleasure in announcing the demise of THE NORTHWESTERN VETERINARY COLLEGE (?) that is supposed to have had its earthly abode somewhere between Minneapolis, Minnesota and Aberdeen, South Dakota.

This nonentity appears to have been born some time last summer or early fall, for about that time its alluring advertisements appeared in several of the leading live-stock papers. The literature sent out described the magnificent diploma that they granted and called attention to the great honor that a college degree conferred as compared with a certificate from an ordinary correspondence course, "To be entitled to suffix 'D.V.S.' to one's name is equivalent to the sterling mark on silverware. It signifies at once ambition, brains, education."

An investigation by Dr. Reynolds and Mr. Tupa disclosed the fact that the only material evidence of such a college in Minneapolis was a post-office box. Most of their correspondence appeared to be mailed from Aberdeen, South Dakota.

The president of this distinguished institution was one A. L. Kreutzer, M.D.V. The literature sent out is very convincing as the following quotations will indicate:

"Ambition, its significance and value. Lack of ambition means a wasted life," etc.

"The work done by correspondence is even better than that done in the class-room."

"Our final examinations are as thorough and exacting as any given in the resident veterinary colleges, yet only a small per cent. of our students fail to pass satisfactorily."

"The regular course covers a period of eighteen months, which is equivalent to a resident college course of three years of six months each." "The student, however, may cover it in less time."

"The Northwestern Veterinary College is an institution of highest character and standing, both educationally and financially. It is an established, successful institution and enjoys the confidence and esteem of the live-stock owners of America, etc."

The list of text-books by well-known veterinary authors is given and the names of the authors are so presented as to make it appear to an ordinary reader that the authors are members of the faculty of this "institution of highest standing" and they say "the college is rich in an experienced faculty."

At my request the various periodicals stopped the advertisements. Their literature was referred to the post-office inspectors

to see if it was not possible to prohibit its being sent through the mails. Whether this had any effect upon the development of this college (?) or whether the "integrity and prestige" was not properly appreciated, we cannot say. A letter to their mourning students give the European war as the cause of the demise—quite likely a "Jack Johnson" hit it. The "highest financial standing" seems to have been attained by gas, for the letter referred to says:

"During the last four months we have resorted to every means possible to continue. We have expended the last dollar of our assets and have reached the limit of our credit."

Whatever the cause, we can only say "Amen!" and state the pleasure it gives us to pen these few sad words to the memory of the "late deceased." We only wish we could say, "so mote it be" with another similar institution.

N. S. MAYO.



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ALPHA PSI QUARTERLY.—We are in receipt of a copy of volume I, number I, of the *Alpha Psi Quarterly*, containing a report of the proceedings of the Fourth Biennial Convention held at Ithaca, N. Y., March 5th and 6th, 1915. This little book of 32 pages, with two illustrations (one the national officers and delegates to the fourth biennial convention, the other, Beta Chapter House at Ithaca), is published by the National Council of the Alpha Psi Fraternity. It contains an address by National President Kingman, the reports of the national secretary and national treasurer and chapter reports. It is altogether a credit to the National Council.

NOTES OF INFORMATION ON THE EXPOSITION AT SAN FRANCISCO: All the points of interest can be taken in in three or four days' time. The illuminations at night are very beautiful and wonderful. All who intend to "do" the Fair should provide themselves with a pair of well-broken, comfortable shoes, as there will be much walking to do. It is hoped that all business of the A. V. M. A. can be finished by Friday noon, as Friday afternoon will be devoted to a ceremony on the Exposition grounds in honor of the day set aside for the association, to be entitled A. V. M. A. Day. The Exposition buildings close at 6 p. m., so that it will be necessary to take these in during the day, but the Zone, or amusement section, is open all day and up to midnight.

## SOCIETY MEETINGS.

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### ALABAMA VETERINARY MEDICAL ASSOCIATION.

The above association met at Auburn, Alabama, in the Veterinary College of the Alabama Polytechnic Institute, March 26th and 27th, 1915. The meeting was quite well attended by veterinarians from Alabama, Georgia and Tennessee.

Dr. J. S. Andrade, of Huntsville, Alabama, read a paper on *Parturient Paresis*. He endorsed the theory that it is a true apoplexy and that it can occur just before delivery of the calf. Dr. Geo. White, in discussing this paper, told of Dr. Wheeler's method at Biltmore. This method was to leave the calf with the cow three or four days, and this would prevent sudden changes in the pressure or circulation of the udder. He claimed that Dr. Wheeler had no mammitis from this method.

The next paper was read by Dr. L. F. Pritchett on *Toxic Lesions of Cotton Seed Meal* when fed to hogs. The chief lesions were atrophy of the heart and oedema of the lungs, hyphemia of the mucosa of the stomach and occasional changes in the intestines, kidneys and liver.

Mr. J. L. Bonner, a Senior student in the Veterinary College, next read a paper on *Black Tongue or Sore Mouth in Dogs*. He stated that Dr. Stiles and Dr. Dawson had advanced the theory that this fatal disease was due to hook worms. Numerous records were given where dogs were kept entirely free of hook worms and round worms in general and the dogs kept in places where *Sore Mouth* had been prevalent, failed to develop *Sore Mouth*. This seems to prove that hook worms are closely related to, if not the cause of, *Sore Mouth or Black Tongue* in dogs.

Dr. W. W. Webb next discussed the action and uses of *Cannabis Indica*. The discussion of this paper brought out the fact that many of the practitioners were using this drug following the administration of pylocarpine and eserine. Doctors Eatman and White advised its use intravenously and found it to give good results, especially when a fresh preparation was used.

Dr. Burson, of the University of Georgia, and Dr. Geo. White, State Veterinarian of Tennessee, next led in a discussion of the *Uses and Abuses of Serum and Virus*. Dr. Burson ad-

vocated the use of serum alone, while Dr. White advanced the idea that Serum and Virus would be used with safety and to advantage.

Immediately following this, Dr. F. B. Whitfield, of Dothan, read a paper on *Hog Cholera and the Veterinarian's Relations to Same*.<sup>\*</sup> It is hoped that this original and very interesting paper will be published by some of the Journals so as to give Dr. Whitfield's experience.

A somewhat extended discussion followed the reading of a paper from Dr. O. W. Payne, of Mobile, on his experiences derived from City Meat Inspection beds.

The following officers were elected for the ensuing year:

President—Dr. J. S. Andrade, Huntsville, Ala.

Vice-President—Dr. F. B. Whitfield, Dothan, Ala.

Secretary-Treasurer—Dr. C. A. Cary, Auburn, Ala.

On March 27th the entire day was devoted to a polyclinic. There were twenty-five cases present, some of the more interesting of which were as follows:

First, Dr. White castrated two colts, standing, each operation being done in less than one minute. Dr. White also demonstrated his method of castrating a mule in order to prevent water bags. In doing this he removed part of the tunica. As a rule, Dr. White advises the casting of a mule for this operation. He also illustrated his method of spaying pigs by the flank route. In all of the operations where casting and restraint were required Dr. White used his various kinds of harness for these purposes, very much to the instruction of the veterinarians present.

Dr. O. R. Eatman, of Gadsden, Ala., made a diagnosis of lameness in a mule that showed a ring bone beginning and directed the treatment.

Dr. J. S. Andrade inspected a case of exuberant growth from the sole and frog of a draft horse. He advised excision and cautery, a pressure pack and bandage.

Dr. W. L. Ingram examined a case of interfering and gave directions for shoeing to prevent.

Dr. F. B. Whitfield inspected a race horse that had an enlargement and contraction of the suspensory ligament. He point-fired and blistered this case. He also inspected two cases of distemper in Collie dogs. The first case showed the nervous type of distemper and the other the catarrhal type, just beginning.

<sup>\*</sup> Published in this issue beginning on page 203.

Dr. P. W. Hudson examined the case of a young horse showing some nervous excitement and slight nasal discharge, and decided that this animal was in the early stages of forage poisoning. He advised change of feed and purging.

The next case present was one with a fistulous opening in the anterior part of the right hock. This opening had been present for about one year, the result of the animal sticking his leg through a buggy wheel and breaking a spoke, which snagged him. The opening was enlarged and a piece of splintered spoke about one inch long was removed. This operation was done by Dr. C. A. Cary.

The next operation was the removal of a dermoid pocket over the right shoulder of a mule. Apparently this pocket was normal, but may have been the result of an injury and infolding of the skin. The dermoid lay immediately over the lower part of the shoulder, where the pressure of the collar had produced a soft fibroid. The mule was cast by Dr. White and the dermoid and soft fibroid were removed by Dr. C. A. Cary.

Hospital cases which were examined by the veterinarians present were: Digital tenotomy; fracture of the upper end of the tibia in a horse; a case of infectious purulent arthritis of femero-tibial articulation of a cow.

C. A. CARY, Secretary.

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### VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular monthly meeting of this Association was called to order by the president, Dr. H. D. Gill, at 8.45 p.m., April 7, 1915.

The regular business of the meeting was suspended and the literary program immediately taken up.

Dr. Adolph Eichhorn, of the Bureau of Animal Industry, Washington, D. C., was introduced and read a very interesting and instructive article entitled "Biological Therapeutics."

Dr. Charles Krumwiede, of the New York Dept. of Health Laboratories, opened the discussion.

In part the doctor said that in both human and veterinary practice there is too much indiscriminate use of the biologic products. The product should be considered and what it is expected to do. The method of application must also be taken into consideration. Stated that twelve out of thirteen cases of



Tetanus in the human subject had been cured by the intra-spinal injection of Serum. Also criticised the so-called gun shot mixtures of organisms used in general practice.

Dr. Frank Breed, of the Lederle Laboratories also discussed this subject, and said that, owing to the delay in getting the result of a blood test, in many cases it is advisable to use a product which is thought to be indicated.

Also spoke of the handling and care of these products and said that the application of the same should be made in an aseptic manner.

Spoke of the treatment of Influenza with Anti-Streptocci serum and the rapid results obtained in a great many cases.

Prophylactic Vaccine should only be used in cases where the animal has not been exposed to disease.

In the treatment of Tetanus recommended keeping the animal in a stupor by the use of bromides or cannabis indica and rectal injections of ether vapor. Anti-tetanic serum to be injected intra-spinal.

Although not scientific, the use of gun shot or mixed bacterins often give good results. In the treatment of abscesses the injection should be made as close to the site of same as possible.

Dr. T. F. Krey, of Parke, Davis and Co., spoke of Canine distemper Vaccine, and said that experiments with this product extended over three years, with an expenditure of over \$10,000. It was sent to 280 veterinarians for experimental use before being put on the market. There is a good chance to immunize and where the vaccine has been used, even if the disease develops, it is less virulent.

Also in contagious abortion there is a good chance to immunize in non-exposed animals.

Dr. J. F. De Vine said he had no striking results with influenza Vaccine, and also mentioned having used methylene blue in contagious abortion with no beneficial results.

Dr. W. Reid Blair commended Dr. Eichhorn's paper and stated that in the treatment of distemper in dogs he uses vaccine. Obtains better results from the curative than the prophylactic product. Immunity from a second attack does not last over four or five months.

Dr. R. W. Ellis also highly commended Dr. Eichhorn's paper. Said that regarding distemper vaccine he had used it for three years before it was put on the market. For the first year the results were poor, but since then has had excellent results, both in the therapeutic and prophylactic treatment.

His greatest opportunities, however, lie along the therapeutic line of treatment. Replying to Dr. Blair's remarks that immunity only lasts from four to six months, the doctor stated that while that was true six months gave a pup a good start and put him at an age where he would acquire a degree of natural immunity and resistance.

Also mentioned a case of fistulous withers which he had treated with stock bacterins with negative results. Had an Autogenous vaccine prepared and injected close to the seat of the trouble, which gave excellent results.

Dr. Griessman asked what Lymphangitis is due to. Dr. Eichhorn stated that it is due to a mixed infection.

Dr. Chase expressed his pleasure at having heard Dr. Eichhorn's paper and mentioned the use of distemper vaccine. Stated that the results he has had are better with the curative than the prophylactic. Also mentioned contagious abortion and the great losses it entails. Questioned if it would not be possible to use auto-therapy in this disease. Also asked why it is that the State Hog Cholera Serum is less potent than some produced by commercial manufacturers.

Dr. Eichhorn, in answering this later, said that the state product is crude and not standardized.

Dr. Slawson also discussed the use of distemper vaccine in dogs, and stated that the serum treatment in the finer breeds is the best.

Dr. J. A. McLaughlin also stated that he had used seven different serums for distemper with varying success.

Cited a case of chorea which he injected and had a good recovery, but in a large number of other cases the results were not so good.

Dr. Eichhorn closed the discussion and stated that he did not intend to question the methods of the manufacturers of biological products.

A unanimous vote of thanks was extended to Drs. Eichhorn, Krumwiede and Breed for their valuable contributions to the program of the evening.

Dr. R. W. Ellis then exhibited the heart of a horse which had suddenly dropped dead while hauling snow. This specimen was examined with much interest, and Dr. W. Reid Blair stated that death was due to thrombus with rupture of the coronary artery with leakage and fatty degeneration.

Dr. Slawson, owing to the lateness of the hour, deferred reading his paper.

Dr. Griessman reported that there are two bills pending in the Legislature, which he read, viz., Assembly Bills Nos. 35 and 1076.

Both of these bills were, after a short discussion, endorsed by this Association.

The case of Dr. Cavazzi was again brought up and the Secretary was instructed to write the Attorney-General asking his opinion as to the legal right of Dr. Cavazzi to practice.

No further business appearing, the meeting adjourned at 12.55 a. m.

ROBT. S. MACKELLAR, Secretary.

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### SOUTHERN AUXILIARY CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

Members met at the Hollenbeck Hotel at noon, December 20, 1914, and took autos to County Farm where Dr. L. M. Hurt gave an interesting talk on Live Stock Judging, using the cows on the farm for illustration. The mixed herd gave him ample material to show the beef, beef and dairy and typical dairy types. Although the day was disagreeable outside, we were well housed and all who attended were well paid for the trip.

After the banquet that evening when Pres. Hubbell called the meeting to order, there were present Drs. Hurt, Closson, Boucher, Carr, Tyler, Phelps, Dell, Hubbell, Whittlesey, Osborne, Hart, Oliver, MacKeller, Byles, Carson, Doak, Wilkinson, and as our visitors, Drs. Irons, Cady and Taylor. All of the Bureau of Animal Industry.

Minutes of the September meeting read and approved.

Secretary reported the application of Dr. Wilkinson of Santa Monica was ready for acceptance. Dr. Hart moved, Dr. Boucher seconded that he be made member of the Association. Carried.

Secretary read his annual report which on motion of Dr. Boucher, seconded by Dr. Phelps, was accepted and placed on file.

The report of the Treasurer was deferred until the next meeting.

Dr. Hart, Chairman of the A. V. M. A. Committee, presented a copy of a letter he would send to Dr. V. A. Moore and others of the Executive Committee of the A. V. M. A. urging the abandoning of the New Orleans meeting and holding the 1915 meeting in San Francisco.

Dr. Tyler's motion that Dr. Hart forward these letters at once, was seconded by Dr. Boucher and carried.

Secretary presented a letter from Dr. W. T. Pugh, secretary of Massachusetts Veterinary Association, suggesting that the several State Associations donate money to erect a monument to the memory of the late Dr. Daniel Elmer Salmond.

Dr. Hart urged we support the movement and requested some action be taken at once.

Dr. Boucher moved, Dr. MacKeller seconded, that this Association contribute ten (10) dollars to such monument fund, and that the Secretary write Dr. Pugh that said amount would be forwarded on demand. Carried.

The next business in order being election of officers. The names presented at the September meeting were, for President, Dr. G. W. Closson; Vice-President, Dr. W. R. Carr; Treasurer, W. E. Phelps; Secretary, J. A. Dell.

Dr. Phelps moved, Dr. Boucher seconded that the nominations be declared closed. Carried.

Dr. Hart's motion that the Secretary cast the ballot for Dr. Closson for President, Dr. Carr for Vice-President, Dr. Phelps for Treasurer, and that the President cast the ballot for Dr. Dell for Secretary, being seconded by Dr. Boucher, was carried and ballots were so cast.

President declared those elected as officers of the association for the ensuing year.

Dr. Bert J. Cady, Veterinary Field Agent of the Bureau of Animal Industry, then gave a most interesting lecture on hog cholera and its treatment, illustrated by stereopticon slides, after which a lengthy discussion followed that was entered into by all present.

Dr. Hart's motion, seconded by Dr. Boucher, that a vote of thanks be tendered Drs. Cady and Hurt for their lectures was carried unanimously.

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### OUR PROFESSION.\*

It would be entirely a work of supererogation to present to this audience statements in evidence of the value to the community of well-trained, competent, and public-spirited veterinarians. On the other hand, it is to be feared that the

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\* Presidential address delivered at the annual meeting of the Ohio State Veterinary Medical Association, January 6, 1915, by Septimus Sisson.

general public does not yet appreciate in any adequate manner the importance of the veterinary profession to the public welfare in general and to the farmer and stock-owner in particular. One of our greatest citizens said not long ago that the American people did not learn so much by experience as by calamities. It is probably true that the recent outbreak of foot-and-mouth disease, with the attendant serious financial losses and dislocation of trade, has done more to bring our profession before the public in a few weeks than all of the previous half century of patient and unassuming service. And, as some of you are well aware, this public interest has by no means been exclusively friendly or appreciative. It was not to be expected that there would fail to appear instances of the irrepressible conflict between individualistic conceptions of personal rights and the broader views of the general welfare. In circumstances such as these it was quite certain that the radical procedure which is necessary to deal adequately with a dangerous and difficult situation would be severely criticized. And it was equally certain that the most unreasonable and dogmatic objections would emanate from those whose views had their root in narrow self-interest and ignorance. Furthermore, and more discreditable, there are always politicians who should, and often do, know better, who lend a willing ear to these uninformed assertions and baseless insinuations concerning the work of disinterested and competent public servants. But such occurrences, annoying and discouraging as they sometimes are, are inevitable; they must receive only sufficient attention to prevent them from vitiating the action which the situation demands. Those who are so forgetful of the amenities of civilized conduct or regardless of common decency as to make baseless charges of graft against honest officials are probably best treated with silent contempt, although some of them doubtless would function more admirably as interior decorations of the penitentiary than as public censors. We have had recently remarkable examples in the European nations now engaged in the greatest war the world has seen of unity in the face of a national crisis. It is desirable for us to learn that this spirit of solidarity and co-operation is necessary if we are to deal effectively with serious animal plagues such as that which has already caused such heavy losses. I do not hesitate to affirm the conviction that the veterinary profession has served the public well and that the results will be all that could reasonably be expected, provided their measures are not vitiated and their activities hampered by ignorant or dishonest meddlers.



As far back as my connection with the veterinary profession extends—and it now goes back almost a quarter of a century—the slogan has been “Elevate the profession.” This laudable idea is formulated in Article II of our Constitution, which sets forth the objects of the association in the words: “To promote the scientific and material interests of the veterinary profession.” It would seem proper and pertinent in a presidential address briefly to discuss some factors necessarily involved in the promotion of professional interests. The other phrases in the article mentioned indicate in a general way what some of those factors are. (1) The maintenance of good fellowship depends in great part on careful observation of ethical proprieties. The keynotes must be mutual esteem and considerate conduct. This does not involve any relinquishment of the right to differ with colleagues on any matter concerning which there is proper ground for a diversity of opinion. Variety is truly the spice of life, and frank discussion is the essence of freedom. But it must be remembered that among scientific workers, the mere *ipse dixit* of no man is accepted without a proper statement and consideration of the grounds on which he bases his case. The old maxim that “every man has a right to his own opinion” is more time-honored than true, and has been the cause of much misapprehension. Is it not true, rather, that the right to an opinion must be earned? How much weight do we give to the opinion of a layman on questions of law, medicine, or engineering, concerning which, in the nature of things, he can have no just claim to competence? But are we always as careful as we might be among ourselves of expressing our views without prejudice and only after due consideration of the facts, as befits members of a learned profession? We can hardly afford to be dogmatic when we remember how few the immutable truths of science are, and that the apparent fact of to-day may prove a fallacy to-morrow. Surely this should enable us to steer clear of either conceit or fatuous complacency! (2) The place of a profession in public estimation depends essentially on its personnel. This fundamental fact is recognized in the statement of our Constitution in the second phrase of Article II, viz., “to elevate the standards of veterinary education.” I believe it is scarcely possible to overestimate or overstate the importance of this factor in our progress, and it has seemed to me a remarkable circumstance that, until quite recently, the profession has not given to it the serious attention which it undoubtedly deserves. Certainly no extended discussion is necessary to convince the members of this association that



very thorough preparation is necessary to fit anyone adequately to cope with the difficult and varied problems and duties which are inevitably encountered by the veterinarian. Only a very limited number of our profession can confine their attention to a narrow and selected field of work. The majority must be general practitioners at least for a good while to come, and must deal with several very different species of animals. This fact demands broad and thorough training in the basic professional subjects of Anatomy, Physiology, and Pathology, on which almost all of the remainder of the curriculum rests. This again presupposes that the student in his preparatory work has accumulated a certain irreducible minimum of information and has reached the necessary intellectual maturity to deal successfully with the difficult subjects which confront him in his professional course. Time will not permit the elaboration of these very general statements, neither does it seem necessary to go into further details before this audience. Most of you, I feel sure, still remember vividly enough the great demands made on you by instructors who—to you—seemed determined to make you specialists in each branch of the curriculum of the college. It seemed impossible to cope with the continuous rapid-fire of new and often formidable technical terms, and the ceaseless bombardment with a varied multiplicity of facts, all of which, you were assured, it was absolutely necessary to assimilate if you were to become a competent and successful member of the profession which you proposed to enter. It is really remarkable that so large a proportion of those who entered our colleges had the courage to continue and emerged with the parchment which they fondly hoped would be the guarantee of success. Some succumbed to the ordeal, and others, with more pertinacity than ability, remained, although it should have been kindly but firmly brought home to them that their mental equipment evidently designated for them some other field of activity. But such elimination could not be expected in any great degree in institutions dependent for profit or even existence on the fees of students, and it is to be feared that even in colleges not so handicapped sufficient courage has not always been evident in this direction. The profession is awakening to the fact that it has not taken sufficient interest in the entrance requirements and the curriculum of the veterinary colleges, and that these are vital and determining factors in our professional advancement. The report of the Committee on Veterinary College Investigation of the A. V. M. A. last year contained the following statement: "The American Medical

Association recognized years ago that its most important function was the supervision and elevation of medical education. We believe it is quite time for the American Veterinary Medical Association to accept this as its important function" (Proceedings, A. V. M. A., 1913, p. 231). It may be urged by some that the portal of the profession can be adequately guarded by the examination for the license to practice. This is only partially true, and for two reasons. An examining board must keep its standard in conformity with the standards of the weaker schools rather than the stronger ones, and in the second place it can hardly exercise as much freedom in rejecting candidates as might seem desirable. Furthermore, most examiners probably realize that an examination which is entirely theoretical is a relatively inefficient test of the qualifications of a candidate. This I regard as a serious defect in our present system, which should be remedied by the introduction of practical tests. The fact that this change would necessarily involve technical difficulties should not be allowed to stand in the way of a much-needed reform. A beginning should be made at once, if only in a very limited way, and the procedure gradually extended as means and methods are developed. Such a modification in procedure would probably be favored by vesting the examining and licensing power in a board specially organized to perform these and other related functions.

The time would seem to be ripe for the creation of a State Veterinary Medical Board, to be organized like the State Medical Board, and to have similar powers and duties. In this connection it is my desire to prevent any misapprehension to which the statement might possibly give rise. The suggestion involves no adverse criticism, either expressed or implied, of the work of the Ohio Agricultural Commission. So far from this being the case, I have no hesitation in affirming that the control and prevention of epizootic diseases in this state have made very gratifying progress during recent years, and I believe that this view is shared by those who are competent to judge and have informed themselves of the facts with regard to veterinary sanitary problems and procedure. If we admit the validity of this opinion, our profession is under obligation to support and co-operate with those in charge of this work. Having digressed to dispose of this possible false impression which might be made, we return to the original thesis by saying that there are functions which belong properly to a professional State Board. Prominent among these are: The examination of candidates for the license

to practice, and the granting of such licenses; the revocation for adequate cause of licenses; the prosecution of persons who violate the statutes relative to the practice of veterinary medicine and surgery; to act as an advisory council in veterinary matters of general public interest. It is likely that such a board could be maintained without any draft on the state treasury. As a matter of fact the State Board of Veterinary Examiners was so conducted for many years, and indeed at its demise left a very respectable legacy to the general funds of the state. I do not believe that there would be any difficulty experienced in inducing competent and representative members of the profession to serve on such a board without salary, although it would seem desirable that its secretary should receive a proper reimbursement for his services. As many of you are aware, there was, at the time of the abolition of the State Board of Veterinary Examiners, a peculiar state of political affairs, which I shall not attempt to characterize before a body that is properly non-partisan further than to say that the obsequies of the board had been fully arranged. As Chairman of the Committee on Legislation at that time it seemed to me and my colleagues the part of wisdom not to grieve too seriously over our loss, but to wait patiently for an opportunity to advocate the creation of a board with fuller powers than its predecessor. I leave it to the judgment of the association to decide whether that time has arrived.

The association will doubtless be interested in knowing that among the important items of professional progress is the recommendation by the Faculty to the Board of Trustees of the Ohio State University that the requirement for entrance to the College of Veterinary Medicine be raised to fifteen units (*i. e.*, four years) of high school work, and that the course of professional study for the degree be extended to four years. It is expected that these changes will be approved by the Board of Trustees and will go into effect in September. The majority of the faculty have felt for some years that such a change was desirable and indeed inevitable, but hesitated for some time to recommend action in the fear that the time was not quite ripe for so far-reaching measures, which might work some hardship to deserving young men by preventing them from entering upon the course or causing them to seek instruction in another institution contrary to their preference and judgment. Doubtless a few such cases are unavoidable, but, on the other hand, it seems incumbent on the university to demand, in its professional courses in particular, quality rather than quantity in the product which

it furnishes for the public service. Ohio thus has the honor of being the first of the university veterinary colleges to take this step, and it is hoped that our colleagues in the East will soon see their way to do likewise. It is notable that the Western state colleges led in this movement, and they have just cause to be proud of the fact.

It seems to be generally agreed that one of the results of the organized murder and pillage on a gigantic scale which is still in progress in Europe will be to place on America the burden of taking a greater share in scientific work and progress than in the past. Fortunately this is a burden which we may assume with courage and determination, much as we regret its cause. While it is true that some valuable contributions have been made in this country to the advancement of veterinary science, and that more and better work is in progress, we must admit with reluctance that we still lag behind in original research and literary production. Our deficiency in investigation is largely due to the lack of opportunity for the necessary training afforded by our colleges, and the lack of appreciation on the part of the public and the profession of results which are not capable of immediate practical application. Thus there has been little encouragement for men to devote themselves to scientific work, and the conditions for such work have been provided in only a few places. It is not by any means creditable to this country that with the exception of the Bureau of Animal Industry and a very few state educational institutions, commercial organizations have the best-equipped laboratories and the best-trained men engaged in veterinary research. A very important step toward remedying this condition was recently taken by the Rockefeller Institute in providing a large sum to be devoted to the investigation of animal diseases. The appointment of Dr. Theobald Smith as Director is assurance that valuable results may be confidently expected; let us hope that some may be as epoch-making as the discovery of the etiology of Texas fever.

We are still largely dependent on Europe for literature. Only a small proportion of our text books and works of reference are American productions. Far be it from me to decry the use of foreign literature; such a parochial spirit deserves the strongest condemnation. But should we continue to use foreign books or translations of such which have undergone no revision for ten years or even thirty, even though they are stated by the publishers from time to time to be "fully revised," or "just out"? The editors of our journals seem to have much difficulty in

securing desirable matter for publication, if we can draw any conclusions from articles which do appear. This evidently is a defect which the profession in general can directly remedy to a large extent by communicating careful observations of interesting cases. It is quite true that this may be a tax on the time and energy of the busy practitioner, but this is his just contribution to the progress of his profession, and is absolutely essential to advancement in clinical science and practice. Naturally extended investigations which require considerable laboratory equipment can only be carried on by men who have the necessary special training and enthusiasm and are provided with the proper facilities. This fact is just beginning to be recognized in our State Experiment Stations. The veterinarians in these institutions have been expected to be walking encyclopedias of veterinary science, and have been loaded with a large amount of teaching, state sanitary work, and institute addresses. Under such circumstances very few problems could be attacked with any hope of success, and a good many unreliable conclusions were published under pressure for results. The necessity for close co-operation between the clinician in the field and the laboratory worker cannot be too strongly emphasized, and a similar relation should exist between the practitioner and the professional teacher. It is evident that it is only in this manner that the three chief fields of professional activity—investigation, teaching, and practice—can be properly correlated and can each achieve the highest possible efficiency. The question naturally arises: How can this correlation of activities be brought about? It would seem that professional association meetings naturally constitute an important means to this end, and that we should devote special attention to the question of rendering them more effective in this direction. I believe that we have been rather too much bound down by tradition in the arrangement of our programs and the conduct of our meetings. We could well afford to dispense with long and rather formal papers on familiar topics, discussions that lead nowhere, and the repetition of everyday surgical procedures. There would be a decided advantage in having the bulk of the program arranged at an earlier date, so that it could be in the hands of members a longer time before the meeting. This would give opportunity for members to be prepared to discuss the topics in a more definite and fruitful manner. It might be well to provide that those presenting papers should send abstracts of them to others who would then open the discussions. In this connection it might be mentioned that in some organiza-



tions, *e. g.*, the National Veterinary Association of England, it is customary to have the principal papers printed and sent to the members a short time before the meeting; the papers are not read, thus giving more time for discussion. Time might be reserved on the program for short reports on cases of special interest which occurred too recently to be included in the printed list. These are merely suggestions which have presented themselves as worthy of mention. It has been said that generals may win battles, but that wars are won by the rank and file. Leaders are necessary, no doubt, in all organizations, but continued progress and substantial success are the result of collective activity.

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A PRELIMINARY REPORT ON THE INVESTIGATION INTO EQUINE ABORTION EXISTING IN THE PROVINCE OF ONTARIO, is the title of a bulletin by F. W. Schofield, D.V.Sc., of the Department of Bacteriology, Ontario Veterinary College, Toronto, and published by authority of the Minister of Agriculture. The same author has issued a pamphlet entitled THE ETIOLOGY OF PYEMIC ARTHRITIS IN FOALS. Both of these reports will be reproduced in whole or in part in a later issue of the REVIEW.

EIGHTEENTH ANNUAL MEETING OF THE UNITED STATES LIVE STOCK SANITARY ASSOCIATION: We recently received the published proceedings of the above association from Secretary Ferguson; complete as usual, although somewhat condensed. Foot-and-Mouth Disease receives considerable attention, although other conditions come in for a share of the discussions. Copies may be had from the Secretary, John J. Ferguson, Union Stock Yards, Chicago, Ill., for \$1.00 if applied for promptly, enclosing the amount.

FEDERAL VETERINARIANS COMING TO FIGHT DOURINE.—Helena, April 16.—Notice has been received by the state veterinarian's department that the federal government will send into Montana in the immediate future twelve veterinarians, whose work will be to fight dourine on the Indian reservations. The disease is said to be pretty general on some of the reservations. The veterinarians will be under the direction of Dr. Cochnour, whose headquarters are at Williston, N. D.—(Anaconda, Mont., *Standard*.)



## NEWS AND ITEMS.

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A PRETTY SOUVENIR: Early in April we received from the Kansas City Veterinary College—accompanied by the card of our esteemed friend and collaborator, Dean Stewart—a pretty souvenir announcement of their commencement exercises which occurred on April 8; presenting class roll, class officers and faculty. The class roll has the creditable number of 58 names. We wish to acknowledge Dean Stewart's courtesy, and congratulate the K. V. C.

A COUPLE OF FIRES is the caption of an article in the Hillsboro, O., *Gazette* of April 16, 1915. In reading the article, we first read of the fire originating in a barn in the rear of Keever's restaurant. This is soon followed by: "The fire spread so rapidly that in a few minutes the adjoining barns belonging to Dr. S. R. Howard and William Hill were blazing." There was \$1,000 damage. We trust our friend Howard did not lose any of his live stock.

544 FOR HOG CHOLERA.—The following is clipped from *Special Bulletin* issued by the North Dakota Agricultural Experiment Station, February, 1915:

"544 FOR HOG CHOLERA."—The so-called "544" for the treatment and prevention of hog cholera, our Lab. No. 8626, is put out by the Thiele Labs. Co., Columbus, Ohio.

A circular accompanying the preparation indicates that this preparation has both curative powers for infected herds afflicted with hog cholera, and immunizing or protective powers against the taking of hog cholera. For an animal weighing 100 pounds, in infected herds, as a curative dose 10 c. c. are to be injected into the ham; or, 5 c. c. for an immunizing dose.

Another circular says:

"Don't be imposed upon. Don't accept the statement of a salesman that he has a treatment similar to '544.' The intermediate products entering into the manufacture of '544' are made in Germany and are unknown to those who are attempting to imitate '544.'"

The cost of a four-ounce bottle is \$5.00.

Our examination of this product shows as follows:

Contents of bottle, fluid ounces.....	4
Ash, grams per 100 c. c.....	1.90
Solids .....	5.09%
Potassium iodide .....	1.90%
Solids other than potassium iodide....	3.19%

"The solids other than potassium iodide are composed mainly of cresols and phenols, but no true carbolic acid is present in the preparation. The preparation, therefore, appears to be an aqueous solution of 1.90 per cent. potassium iodide, and a total amount of solids of 5.09 per cent. The preparation does not differ essentially from other samples of this class of product already examined and reported upon. The reader is referred to Special Bulletin No. 22, Volume II., also to Nos. 3, 5 and 6, Vol. III., for further information with regard to tests on products of like nature.

The general directions accompanying this product and the character of the information which they furnish, is intended, in the judgment of the writer, to lead one to believe that the product has the virtues of hog cholera serum, when as a matter of fact, based upon experiments previously performed, the product is practically worthless for the purposes claimed.

#### JUDGE ORLADY'S REVIEW OF THE PENNSYLVANIA LAW.

*The following opinion is published with the belief that it may be of general interest to the profession.*

##### IN THE SUPERIOR COURT OF PENNSYLVANIA.

Commonwealth *vs.* S. E. Weber.

No. 91, October Term, 1914. Appeal by the Commonwealth from the judgment of the Court of Quarter Sessions of Lancaster County.

Filed February 24, 1915.

ORLADY, J.—The indictment in this case concludes "contrary to the form of the Act of the General Assembly in such case made and provided, and against the peace and dignity of the Commonwealth of Pennsylvania," and does not specify the ninth section of the Act of July 22, 1913, P. L. 928, which the learned trial judge in the court below held to be unconstitutional, and for that reason sustained the demurrer filed by the defendant. Conceding this to be true, which we do not do, yet the indictment was clearly a good one and valid under the first section of the Act of March 30, 1905, P. L. 78, to which the offense charged is as applicable as to the ninth section of the latter statute. The identification of the offense is as specifically set out in one as the other and both acts are in force.

For the reasons given in Commonwealth *vs.* Falk, No. 90, October Term, 1914, the judgment in this case is reversed and the record remitted to the court below with a procedendo.

##### IN THE SUPERIOR COURT OF PENNSYLVANIA.

Commonwealth *vs.* Charles Falk.

No. 89, October Term, 1914. Appeal by the Commonwealth from the judgment of the Court of Quarter Sessions of Lancaster County.

Filed February 24, 1915.

ORLADY, J.—For the reasons given in *Commonwealth vs. Falk*, No. 90, October Term, 1914, the judgment in this case is reversed and the record remitted to the court below with a procedendo.

IN THE SUPERIOR COURT OF PENNSYLVANIA.

*Commonwealth of Pennsylvania vs. Charles Falk.*

No. 90, October Term, 1914. Appeal by the Commonwealth from the judgment of the Court of Quarter Sessions of Lancaster County.

Filed February 24, 1915.

ORLADY, J.—The indictment in this case charges a violation of law, viz.: "It shall be unlawful for any person to drive or move or transport on or across or along any public highway, or in wagons or in railroad cars or other vehicles, any animal now or hereafter adjudged and proclaimed by the State Live Stock Sanitary Board, be of a transmissible character, except upon permission in writing from the State Live Stock Sanitary Board, or any member, officer, or agent of the Board." The defendant filed a demurrer alleging that no indictable offense was set out; that the act under which the indictment was drawn is unconstitutional, as it violates Sec. 3 of Act 3, of the constitution of the Commonwealth of Pennsylvania, in having more than one subject; that it is unconstitutional as it confers legislative powers upon the State Live Stock Sanitary Board; that it failed to set forth that the animal suffering with tuberculosis was a domestic animal, or was one of the animals defined in Sec. 1 of the act, which was sustained by the court.

The construction placed upon this statute of July 22, 1913, P. L. 928, is entirely too narrow and refined to meet the substantial and vital demands of this important legislation. The act in question is the last declaration of the legislative will starting in 1897, and it has been enlarged in nearly every succeeding session of the assembly, so that the act of 1913 stands as a codification of all previous legislation relating to the subjects embraced in its title, which is as follows: "An Act relating to domestic animals; defining domestic animals so as to include poultry; providing methods of improving the quality thereof, and of preventing, controlling and eradicating diseases thereof; imposing certain duties upon practitioners of veterinary medicine in Pennsylvania; regulating the manufacture and sale of tuberculin, mallein and other biological products for use with domestic animals; defining the powers and duties of the State Live Stock Sanitary Board, and officers and employees thereof; fixing the compensation of the Deputy State Veterinarian; and providing penalties for the violation of the Act."

It cannot be open to controversy that but one purpose is sought by this enactment, which is intended to embrace the whole subject-matter, and a fair examination of the body of the act, as suggested by the comprehensive title, would lead any inquiring mind to an examination of its contents.

The restricted definition of "domestic animal" was enlarged so as to embrace any equine or bovine animal, sheep, goat, pig, dog, cat, or poultry. Every provision in the statute reasonably and directly related to the general subject matter of the legislation, and each provision was considered necessary to carry into effect the beneficent purposes of the enactment. The method adopted by the legislature of enforcing the general provisions of the act was clearly within its power, and in defining the authority and duties of the State Live Stock Sanitary Board, and the officers and employees thereof, are so necessarily related to the preventing, controlling, and eradicating the diseases against which the enactment is directed, that each is germane to the general subject. The powers and duties devolved upon the State Live Stock Sanitary Board and its officers, are but an enumeration of methods referred to in Sec. 6, and are clearly within the power therein defined. Such legislation would be of no effect unless the power to enforce its provisions was lodged somewhere. This Board was deemed the most efficient agency for preventing, controlling and eradicating disease, and enforcing the prescribed penalties for violation of the act. And every power given to the Board was deemed to be directly and immediately necessary to accomplish the expressed objects of the statute. With this authority vested in the Board, the compensation of its

employees and all other expenses follow as a reasonable provision, and all are germane to the one object which related to domestic animals and providing methods of improving the quality thereof. It has been repeatedly stated that our only duty and our only power in scrutinizing an act with reference to its constitutionality is, to discover what, if any, provision of the constitution it violates. The presumption is always in favor of the constitutionality of an act of assembly, and it cannot be declared void unless it violates the constitution clearly, palpably, plainly, and in such manner as to leave no doubt and hesitation: *Commonwealth vs. Moir*, 199 Pa., 543. The interpretation of a statute should be determined by its paramount purpose, rather than by the details through which that purpose is to be accomplished. The subject may have but one object, while the measure necessary for the attainment of that object may necessarily embrace many subordinate subjects, differing in their nature and particular effect, yet all contributing to it, and comprising within the principal subject everything which the nature of the subject of a title reasonably suggests as necessary or appropriate for the accomplishment of its expressed purpose, is sufficiently indicated by such title: *Commonwealth vs. Jones*, 4 Pa. Superior Ct., 362; *Commonwealth vs. Pflaum*, 50 Pa. Superior Ct., 55.

The several provisions of the act have a proper relation to each other and all the details constitute essential parts of the general design to accomplish a single purpose, and each relates to the same subject which is the common object of the enactment. The legislature cannot delegate its power to make a law; but it can make a law to delegate a power to determine some fact or state of things upon which the law makes, or intends to make its own action depend: *McGonnell's License*, 209 Pa., 327; *Foster Township Road Tax*, 32 Pa. Superior Ct., 51. As was said in *Locke's Appeal*, 72 Pa., 491, "There are many things upon which wise and useful legislation must depend, which cannot be known to the law-making power, and must, therefore, be a subject of inquiry and determination outside of halls of legislation." See also *C. M. & St. Paul R. R. vs. Minn.*, 134 U. S., 413; *Elwell vs. Comstock*, 100 Minnesota, 261; *Railroad vs. Railroad*, 206 U. S., 314; *Saratoga vs. Gas Co.*, 191 N. Y., 125, and the recent *Minnesota Rate Case*, 230 U. S., 380.

The list of dangerous diseases enumerated in the Act rendered it vitally important to provide that the inspection and care of affected animals and the disposition of carcasses of such, should be under the control of experienced persons, both for the treatment of such and the prevention of epidemic, and for preservation of the records, which result could only be secured by organized bodies of men, who were specially trained in that department of learning.

The act is intended to regulate the transportation of any animal, wild or domestic, having a transmissible disease. The purpose is avowedly to prevent, control and eradicate diseases of domestic animals, but it is just as proper to regulate the transportation of elk, deer or foxes when they may be the means of spreading infectious diseases among domestic animals as it is to prescribe the manner of transporting of the well-known barn or herd stock. The act is framed in clear, unambiguous words and it is meant to apply to all animals under the control of man.

The defendant did not ask for a bill of particulars, and could not be misled by any of the provisions of the act which are fully indicated by the title. Even if the act of July 22, 1913, is at all doubtful, as to its constitutionality, which is not admitted, the indictment was good under the Act of March 30, 1905, P. L. 78, which is in substance the same as Sec. 26 of the act before us, and is still in force. It made no difference under what particular section of a statute the indictment may have been drawn, nor are the infirmities of such section of the indictment thereunder material, provided the indictment be good under some other section of a statute which is valid: 22 Cyc., p. 3, sec. 8. See also *State vs. Vanderburg*, 159 Missouri, 230; 60 S. W. Repr., 79.

The judgment is reversed, the record to be remitted to the court below with a procedendo.

# VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the date given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings. Secretaries are earnestly requested to see that their organizations are properly included in the following list:

Name of Organization	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alabama Veterinary Med. Ass'n.	Mar. 5-6-7, 1914	Auburn	C. A. Cary, Auburn.
Albany Ass'n, N. Y. A. V. C.	June 10, 1915	141 W. 54th St.	P. K. Nichols, Port Richmond, N. Y.
Alumni Ass'n U. S. Coll. Vet. Surg.	April 15, 1915	Washington, D. C.	C. R. Smith, Washington, D. C.
American V. M. Ass'n.	Week beginning Aug. 30, 1915.	Oakland, Cal.	Nelson S. Mayo, 4753 Ravenswood Ave., Chicago, Ill.
Arkansas Veterinary Ass'n.	1st Week Feb., 1916	Little Rock	R. M. Gow, Fayetteville.
Ashtabula, Lake & Genauga Vet. M. A.		Painesville, O.	R. A. Greenwood, Sec.-Treas.
Ass'n Médecine Vétérinaire Française.	1st and 3d Thur. of each month.	Leec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
"Laval"	2d Fri. each month.	Chicago	H. A. Smith, Chicago, Ill.
B. A. I. Vet. In. A., Chicago.	3d Mon. each month.	S. Omaha, Neb.	E. J. Jackson, So. Omaha.
B. A. I. Vet. In. A., So. Omaha.	Monthly.	St. Joseph.	F. W. Caldwell, St. Joseph, Mo.
Buchanan Co. Vet. Ass'n.	December 10, 1913.	San Francisco	John F. McKenna, Fresno.
California State V. M. Ass'n.	Feb. and July.	Ottawa	A. E. James, Ottawa.
Central Canada V. Ass'n.	June and Nov.	Syracuse	W. B. Switzer, Oswego.
Central N. Y. Vet. Med. Ass'n.	2d Tues. each month.	Chicago	D. M. Campbell, Chicago.
Chicago Veterinary Society.	May 28-29, 1915	Fort Collins	I. E. Newson, Ft. Collins.
Colorado State V. M. Ass'n.	Pending.	New Haven	A. T. Gilyard, Waterbury.
Connecticut V. M. Ass'n.	Jan., Apl. July Oct.	Wilmington	A. S. Houchin, Newark, Del.
Delaware State Vet. Society.	2d week, July, 1913.	Rochester	J. H. Taylor, Henrietta.
Genesee Valley V. M. Ass'n.	Dec. 22-23, 1913	Atlanta	P. F. Bahnsen, Americus.
Georgia State V. M. A.			Louis P. Cook, Cincinnati.
Hamilton Co. (Ohio) V. A.			J. R. Fuller, Weiser.
Idaho Ass'n of Vet'y Graduates.	Nov. 20, 1914.	Idaho Falls	L. B. Michael, Collinsville, Ill.
Illmo Vet. Med. Ass'n.	Dec. 3-4-5, 1914.	E. St. Louis.	L. A. Merillat, Chicago.
Illinois State V. M. Ass'n.	Jan. 14, 1914.	Chicago	A. F. Nelson, Indianapolis.
Indiana Veterinary Association.		Indianapolis.	H. B. Treman, Rockwall City.
Iowa Veterinary Ass'n.	Jan. 5-6, 1915	Topeka	J. H. Burt, Manhattan.
Kansas State V. M. Ass'n.	Oct. & Feb. each year.	Lexington	Robert Graham, Lexington.
Kentucky V. M. Ass'n.	2d Tues. each month.	Philadelphia	Cheston M. Hoskins.
Keystone V. M. Ass'n.	Pending.		Phil. H. Fulestow, Norwalk, Ohio.
Lake Erie V. M. Association.	Sept., 1914	Lake Charles	Hamlet Moore, New Orleans, La.
Louisiana State V. M. Ass'n.	April 14, 1915.	Waterville	H. B. Wescott, Portland.
Maine Vet. Med. Ass'n.	Pending.	Baltimore	John H. Engel, Baltimore.
Maryland State Vet. Society.	4th We. each month.	Young's, Boston.	W. T. Pugh, Southbridge.
Massachusetts Vet. Ass'n.	Feb. 2, 3, 1915.	Lansing	W. A. Ewalt, Mt. Clemens.
Michigan State V. M. Ass'n.	Jan. 13-14-15, 1915.	St. Paul.	G. Ed. Leech, Winona.
Minnesota State V. M. Ass'n.	1914.	Vicksburg	J. D. Townsend, Louisville.
Missouri Valley V. Ass'n.	Feb. 2-3-4, 1915.	Kansas City, Mo.	Hal. C. Simpson, Denison, Ia.
Mississippi State V. M. Ass'n.	Semi-Annually.	Galesburg, Ill.	G. E. McIntyre, Alexis, Ill.
Missouri Valley V. M. Ass'n.	July, 1915	St. Louis.	Chas. D. Folse, Kansas City.
Missouri Vet. Med. Ass'n.	Sept. 24, 25, 1913.	Helena.	A. D. Knowles, Livingston.
Montana State V. M. A.	2d Mon., Aug., 1915.	New York, N. Y.	S. J. Walkley, 185 N. W. Ave., Milwaukee, Wis.
Nat'l Ass'n B. A. I. Employees.			Carl J. Norden, Nebraska City.
Nebraska V. M. Ass'n.	1st Mo. & Tu., Dec. '13	Lincoln, Neb.	H. J. Milks, Ithaca, N. Y.
New York S. V. M. Soc'y.	Aug. 3-4-5, 1915.	Ithaca, N. Y.	J. P. Spoon, Burlington.
North Carolina V. M. Ass'n.	June 23, 1914.	Wilson.	A. F. Schalk, Agricultural College.
North Dakota V. M. Ass'n.	Week of July 20, 1914	Fargo	E. V. Hover, Delphos.
North-Western Ohio V. M. A.	Nov. 1913.	Delphos.	F. A. Lambert, Columbus.
Ohio State V. M. Ass'n.	Jan. 13-14, 1916.	Columbus.	F. F. Sheets, Van Wert, Ohio.
Ohio Soc. of Comparative Med.	Annually.	Upper Sandusky.	J. C. Howard, Sullivan.
Ohio Valley Vet. Med. Ass'n.			S. H. Gallier, Norman.
Oklahoma V. M. Ass'n.	Pending.	Oklahoma City.	L. A. Wilson, Toronto.
Ontario Vet. Ass'n.	1st Week in Feb. 1914	Toronto	John Reichel, Glenside.
Pennsylvania State V. M. A.	March 2, 3, 1915.	Philadelphia	David C. Kretzer, Manila.
Phillipine V. M. A.	Call of President.	Manila	Sam. B. Foster, Portland, Ore.
Portland Vet. Med. Ass'n.	4th Tues. each month.	Portland, Ore.	Gustave Boyer, Rigaud, P. Q.
Province of Quebec V. M. A.		Mon. and Que.	J. S. Pollard, Providence.
Rhode Island V. M. Ass'n.	Jan. and June.	Providence.	B. K. McInnes, Charleston.
South Carolina Ass'n of Veter'ns.	Pending.	Centralia.	F. Hockman, Iowa.
South Illinois V. M. and Surg. Ass'n.	Aug. 3, 1915.		
St. Louis Soc. of Vet. Inspectors.	1st Wed. fol. the 2d Sun. each month.	St. Louis.	Wm. T. Conway, St. Louis, Mo.
S. huykill Valley V. M. A.	Dec. 16, 1914.	Reading.	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.		Philadelphia.	B. T. Woodward, Wash'n, D. C.
South Dakota V. M. A.	July 1, 2, 1915.	Rapid City.	S. W. Allen, Watertown.
Southern Aux. of Cal. S. V. M. Ass'n.	Jan. Apl. July, Oct.	Los Angeles.	J. A. Dell, Los Angeles.
South St. Joseph Ass'n of Vet. Insp.	4th Tues. each month	407 Illinois Ave.	H. R. Collins, South St. Joseph
Tennessee Vet. Med. Ass'n.	November, 1914.	Nashville.	Jas. McMahon, Columbia
Texas V. M. Ass'n.	Nov., 1913	College Station.	Allen J. Foster, Marshall.
Twin City V. M. Ass'n.	2d Thu. each month.	St. P.-Minneap.	M. H. Reynolds, St. Paul, Minn.
Utah Vet. Med. Ass'n.	Spring of 1914.	Salt Lake City.	E. J. Coburn, Brigham City.
Vermont Vet. Med. Ass'n.			G. T. Stevenson, Burlington.
Veterinary Ass'n of Alberta.			C. H. H. Sweetapple, For. Saskat-chewan, Alta., Can.
Vet. Ass'n Dist. of Columbia.	3d Wed. each month	514 9th St., N.W.	H. Stanley Gamble, 1329 Gallatin, Wash., D. C.
Vet. Med. Ass'n, Geo. Wash. Univ.	1st Sat. each month.	Wash'ton, D. C.	J. M. Cashell, 2115 14th Street.
Vet. Ass'n of Manitoba.	Feb. & July each yr.	Winnipeg.	Wm. Hilton, Winnipeg.
Vet. Med. Ass'n of N. J.	July, 1915.		E. L. Hobblein, New Brunswick.
V. M. Ass'n, New York City.	1st Wed. each month.	141 W. 54th St.	R. S. MacKellar, N. Y. City.
Veterinary Practitioners' Club.	Monthly.	Jersey City.	T. F. O'Dea, Union Hill, N. J.
Virginia State V. M. Ass'n.	July 9-10, 1914.	Staunton.	Geo. C. Faviile, North Emporia.
Washington State Col. V. M. A.	1st & 3d Fri. Eve.	Pullman.	R. J. Donohue, Pullman.
Washington State V. M. A.	June, 1915.	Yakima.	Carl Cosier, Bellingham.
Western N. Y. V. M. A.	June 24, 1914.	Buffalo.	W. E. Frits, 358 Jefferson St., Buffalo
Western Penn. V. M. Ass'n.	3d Thu. each month.	Pittsburgh.	Benjamin Gunner, Sewickley.
Wisconsin Soc. Vet. Grad.	Feb. 10, 11, 1914.	Milwaukee.	W. W. Arzberger, Watertown.
York Co. (Pa.) V. M. A.	June, Sept., Dec., Ma.	York.	E. S. Bausticker, York, Pa.



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ROBT. W. ELLIS, Bus. Mgr.

Sworn to and subscribed before me this 31st day of March, 1915.

(Seal.)

MOSES MORRIS, Notary Public No. 2464.  
(My commission expires March 30, 1916.)